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**APPLYING SOCIOEMOTIONAL SELECTIVITY THEORY TO NURSING
HOME RECREATION: SERVICES WHICH PROMOTE RESIDENTS' AND
FAMILY/FRIENDS' AFFECTIVE WELL-BEING**

A Dissertation in
Parks, Recreation and Tourism Management
by
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ABSTRACT

The psychosocial well-being of older adults living in nursing homes and the people they are close to is of increasing concern. Nursing home residents demonstrate high rates of loneliness and depression while close family members report feelings of role ambiguity and stress. These issues will become increasingly important as the number of residents rises dramatically. To partially address residents' psychosocial needs, nursing homes that receive federal funds are required by law to provide meaningful and appropriate recreation services. A primary strategy that recreation providers use to meet residents' psychosocial needs is to promote new relationships among them through group programs. While this approach may facilitate some supportive relationships, it also promotes meaningless and detrimental ones as well. Moreover, it omits relationships that are most important to residents-- those with close family members and old friends. The liberal use of resident-centered groups is consistent with activity theory, the predominant theoretical framework for recreation services in nursing homes. This theory suggests that high rates of interaction promote affective well-being. Activity theory, however, has been strongly criticized as empirically weak and simplistic. A newer and more empirically robust theory of social interaction, socioemotional selectivity, appears to provide a stronger framework for promoting psychosocial well-being in residents. It suggests that, as time left to cultivate relationships ebbs, affective well-being is associated with contact with important people, not simply frequent interactions. This study examined the relevance of socioemotional selectivity theory to recreation services in nursing homes and explored ways in which it could be used to address the psychosocial needs of residents and their close family/friends. There were four major findings. First, in accordance with socioemotional selectivity theory, residents tended

to be very close to family and old friends. While Fung and Carstensen (2004) suggested that very close relationships serve two functions, they provide emotional social support and are emotionally meaningful, in this study they were closely associated with emotional social support. Second, at recreation groups, residents generally did not interact with people from whom they received emotional social support. Therefore, justifying the provision of programs to groups of residents as a way to reduce feelings of loneliness and depression may be erroneous. Furthermore, in accordance with socioemotional selectivity theory, residents and family friends indicated that desirable forms of interaction excluded other residents. Third, one variable associated with socioemotional selectivity theory, satisfaction with social contacts in groups, appeared to be very influential in predicting group attendance and a factor comprised of activities that were social in nature or involved outings. Fourth, family/friends reported greater freedom to interact with nursing home residents than previously reported by Friedemann and colleagues (1997).

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CHAPTER 1. INTRODUCTION

The psychosocial well-being of the 1.5 million older adults living in nursing homes (U.S. Census Bureau, 2001) and their close family and friends is of concern. Residents experience high rates of loneliness and depression (Bondevik & Skogstad, 1998; Jongenelis et al., 2004; Pinguart & Sörensen, 2003a; Pnina, 2004) while people they are close to experience role ambiguity and stress (Almberg, Grafstrom, Krichbaum, & Winblad, 2000; Davis & Buckwalter, 2001). These issues warrant immediate attention but they will become even more important as the nursing home population grows. While the percentage of older adults living in nursing homes is declining, Baby Boomers are maturing at a rate that outpaces advances in medicine and senior housing such that the number of older adults using nursing homes is likely to double to 3 million people by 2030 (Sahyoun, Pratt, Lentzner, Dey, & Robinson, 2001).

Within nursing homes, recreation departments play an important role in addressing residents' psychosocial needs. In the Omnibus Budget Reconciliation Act of 1987, the U.S. Congress formally recognized the contribution of recreation to nursing home residents' quality of life. It required facilities that receive Medicaid or Medicare funds to utilize qualified individuals to provide meaningful and appropriate recreation services. These services are typically delivered to groups of residents. Providers generally believe that this method is an efficient and effective way to deliver services, high rates of social interaction among residents is thought to promote affective well-being (Carpenter, 2002; Gutheil, 1991; McGuinn & Mosher-Ashley, 2000; Nystrom & Segesten, 1996). While some residents appear to develop mutually beneficial friendships

(Carpenter, 2002; Fessman & Lester, 2000; Kiely, Simon, Jones, & Morris, 2000) contact between residents is often superficial or, in some instances, detrimental (Gutheil, 1991; McGuinn & Mosher-Ashley, 2000; Powers, 1996). Overall, the effectiveness of resident-centered group programs in promoting meaningful friendships which contribute to affective well-being appears to be limited (McGuinn & Mosher-Ashley, 2000), and feelings of loneliness and depression pervade (Carstensen, 1991; Mor et al., 1995).

Emphasis on developing large social networks is consistent with activity theory which, explicitly or implicitly, serves as the theoretical framework for most recreation programs (Carstensen, 1991; John, 1996; McGuinn & Mosher-Ashley, 2000). Activity theory evolved from a long-held belief that older adults who have higher rates of social interaction tend to have higher rates of life satisfaction (Lemon, Bengtson, & Peterson, 1972; Longino & Kart, 1982). However, it has been strongly criticized. First, the authors who formally stated and validated activity theory acknowledge that the empirical evidence to support it is limited and suggest that it is imprecise. Second, recent research conflicts with aspects of the theory describing the relative benefits associated with informal, formal, and solitary activities (Lennartsson & Silverstein, 2001; Menec, 2003). Third, while activity theory suggests that frequent social interaction is linked with affective well-being, this relationship appears to dissolve when physical health is controlled (Lee & Markides, 1990).

A newer and leading theory of social interaction, socioemotional selectivity, implies that relationships among nursing home residents are less desirable than previously thought. In later life, emotion regulation is an important and highly developed skill (Charles & Carstensen, 2007). Socioemotional selectivity theory explains how

emotion regulation is achieved through proactive relationship retention and discharge. Socioemotional selectivity theory suggests that as perceived time left to cultivate relationships diminishes people tend to discard peripheral relationships and focus on important ones, such as those with close family members and old friends (Carstensen, 1991, 1992, 1998; Carstensen, Isaacowitz, & Charles, 1999; Lang & Carstensen, 2002). Despite an overall decline in the number of relationships, this process appears to be positively related to affective well-being in older adults. It may even promote it by enabling older adults to focus their limited time and energy on relationships that are most beneficial and avoid those that are inconsequential or detrimental. Socioemotional selectivity theory has been validated in numerous studies and appears to be generalizable to various generations (Carstensen & Fredrickson, 1998; Lansford, Sherman, & Antonucci, 1998; Pinqart & Silbereisen, 2006; Pruzan & Isaacowitz, 2006), cultures (Fung, Carstensen, & Lang, 2001; Fung, Carstensen, & Lutz, 1999; Fung, Lai, & Ng, 2001), family composition, and personality (Lang, Staudinger, & Carstensen, 1998).

In addition to studies of the general population, a growing body of evidence suggests that socioemotional selectivity theory applies to nursing home residents. Kasser and Ryan (1999) identified a positive correlation between relationships with close family and friends and resident well-being and life satisfaction. Similarly, McGuinn and Mosher-Ashley (2000) found that participation in self-directed social activities was associated with life satisfaction but participation in resident centered groups was not. Lastly, Carpenter (2002) concluded that large social networks among residents are not related to feelings of support while Pinqart and Sørensen (2003a) indicate that intimate relationships reduce rates of loneliness and depression among older adults. These studies

suggest that socioemotional selectivity theory is applicable to the nursing home setting and support the notion that interventions that address residents' affective needs will be more successful if they focus on relationship intimacy rather than high rates of interaction. If socioemotional selectivity theory were used, intimate relationships, such as those with close family members and old friends (Carstensen, et al., 1999; Gutheil, 1991; Kasser & Ryan, 1999; Powers, 1996), would be utilized rather than resident centered groups.

In addition to improving residents' well-being, this strategy is likely to be beneficial for close family members and friends. Family and friends often want to be involved in residents' lives (Duncan & Morgan, 1994; Friedemann, Montgomery, Maiberger, & Smith, 1997; Gaugler, 2006; Gladstone, Dupuis, Wexler, 2006; Tilse, 1997) but nursing home policies and procedures often hinder or omit their participation (Friedemann, Montgomery, Rice, & Farrell, 1999; Russell & Foreman, 2002; Wright, 2000). The involvement of family members in recreation services tends to be limited to providing information about residents' interests and invitations to participate in group programs are rare (Lanza, 1997). These practices are likely to exacerbate feelings of role ambiguity and stress among close family members and friends. Despite recreation providers' present inattention to residents' relationships with close family and old friends, they have the potential to strengthen established relationships by including these people in group activities or developing events that target these relationships exclusively (Crispi & Heitner, 2002; Dupuis & Pedler, 1995; Friedemann et al., 1997; Port et al., 2001; Voelkl, Battisto, Carson, & McGuire, 2004). Emphasizing important relationships in nursing home recreation programs, however, is innovative and several issues need to be

addressed prior to exploring the benefits and limitations of such an approach.

Statement of Purpose

This study examined aspects of social support and interaction of dyads that include a resident and someone the resident is very close to. It had three primary objectives: (a) to examine residents' social networks to explore the usefulness of socioemotional selectivity theory as a framework for recreation service delivery; (b) to examine the inclusion of very close family members and friends in recreation programs; and (c) to identify potential interventions that interest residents and very close family members and friends. Specifically, the following six research questions were addressed (see Appendix A for the concept map). Findings from this pilot study will be used to provide justification and direction for future research on theoretically sound recreation interventions that promote resident and family member well-being.

Research Questions

The following are the primary research questions.

1. Who are the close and important people in residents' social networks and what are they like?
2. Do very close and important social contacts provide a high degree of emotional social support?
3. How often do residents attend recreation groups and do they interact with close and important people at them?
4. What variables are associated with participation in recreation groups?
5. In what ways do nursing home policies and procedures shape the interaction between residents and very close family members and friends?

6. What potential recreation interventions are of common interest to residents and very close family members and friends?

Delimitations

This study was delimited in three respects: (a) the health and tenure of residents, (b) location of nursing homes, and (c) number of very close family friends interviewed. First, the sample was limited to residents who have had the opportunity to adjust to life in a nursing home and are most able to engage others socially. Only residents who scored 24 or above on their most recent Mini-Mental State Exam, in stable health (Kolanowski, Buettner, Costa, & Litaker, 2001), and who lived in their current nursing home for three months or more (Joiner & Freudiger, 1993; Manion & Rantz, 1995) were invited to participate.

The social relationships of people with and without cognitive limitations appear to differ. In some instances, cognitive impairments may enhance social interaction. Carstensen, Fisher, and Malloy (1995) found a relationship between spatial memory impairments and high rates of social interaction as well as positive social interactions. However, most studies suggest that cognitive impairment hinders social interaction. People with dementia appear to have deficits in “face processing, person perception, and social reasoning” which adversely affects the maintenance of relationships (Washburn & Sands, 2006, p. P174). These limitations appear to influence visitation patterns. Port and colleagues (2001) concluded that dementia status was the most important predictor of post-admission visitation after preadmission contact. Similarly, Martire, Lustig, Schulz, Miller, and Helgeson (2004) concluded that programs that promote social interaction between residents and very close family members are not successful if the resident has a

cognitive impairment. The social relationships of residents with cognitive impairments are of concern but beyond the scope of this study. To examine them adequately, the inhibitions and social coping mechanisms of moderate dementia as well as the inability to communicate or recognize loved ones of severe dementia would need to be taken into account. By focusing on residents without cognitive impairments, this study established a baseline to which future research on residents with cognitive limitations may be compared.

Second, data were collected in two communities located in the northeast portion of the United States. Nursing homes in or near Centre County, Pennsylvania and Tompkins County, New York were used as data collection sites. These areas are similar to one another in terms of size, racial diversity, income and proportion of older adults. Center County has a population of 140,561 people, 89.6% are white non Hispanic, the median household income is \$37,569, 36.3% of adults have a Bachelor's degree or higher, and 10.9% of the population is over 65 years old (Fedstats, 2007a). Tompkins County has a population of 96,501 people, 84.3% are white non Hispanic, the median household income is \$38,110, 47.5% of adults have a Bachelor's degree or higher, and 9.8% of the population is over 65 years old (Fedstats, 2007b).

Third, only one person each resident identified as a very close family member or friend and who lived outside of the nursing home was invited to complete the family/friend portion of the survey. Socioemotional selectivity theory suggests that this type of relationship is most likely to promote affective well-being because it provides a high degree of emotional meaning and social support (Fung & Carstensen, 2004; Kahn & Antonucci, 1980). Very close relationships with people who live outside of the nursing

home are of particular interest because, while recreation providers tend to support relationships between residents, they rarely address relationships with people who live outside of the facility (Lanza, 1997). Ideally, all people residents feel very close to would be surveyed but financial constraints make this approach impractical.

Limitations

Six primary issues limit the generalizability of the findings from this study. First, the sample of residents and family/friends was moderate and small respectively. Second, the selection of respondents was not random. In addition to self-selection, the selection of family/friends was constrained by residents. Third, conclusions only apply to nursing home residents and their family/friends who share similar demographic profiles. Fourth, the data are nested but in numbers which prohibit analysis by location; thus facility specific characteristics are likely to confound the results. Fifth, questions pertaining to leisure interests and family/friend involvement in nursing homes are constructed from the literature and their psychometric properties are questionable. Sixth, since this study uses a cross-sectional design, age and cohort effects are likely to confound one another (Schie & Willis, 2002).

Definitions

Closeness: One of two scores from the Social Convoys Questionnaire (SCQ, Lang & Carstensen, 1994, 2002; Lang et al., 1998). Residents were permitted to list up to nine people with whom they had *very close* and *not quite so close* relationships. The scale was derived by multiplying the number of very close people by 3, the number of not quite so close people by 2, and calculating the grand mean.

Emotional Social Support: One of two types of emotional social goals. “Picking

the social partner because he/she is emotionally important to the individual” (Fung & Carstensen, 2004, p. 74).

Family/Friend: A person the resident identified as very close.

In-house/Private: A subscale derived from a factor analysis comprised of telephone, private meals, and private parties ($\alpha = .63$).

Nontraditional/Private: A subscale derived from a factor analysis comprised of e-mail, webcam, pet visits, and overnight outings ($\alpha = .68$)

Not Quite So Close (NQSC): An important family member or friend who the resident does “not feel quite so close [to] compared to those in the inner circle, but who are still very important” (Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang et al., 1998, p. P23).

Other Relationships: Relationships that are not described as very close or not quite so close.

Outings/Social: A subscale derived from a factor analysis comprised of group outings, semiprivate outings, outings without staff, recreation groups, and meals in the dining room ($\alpha = .84$).

Private Activities: Recreation activities at which residents interact with family/friends. Other residents or staff are not involved or near by.

Public Activities: Recreation activities at which residents interact with family/friends as well as other residents or staff.

Recreation Activity Types: A factor analysis was used to aggregate individual recreation activities into three types: (a) Outings/Social, (b) Nontraditional/Private, and (c) In-house/Private.

Recreation Interest: The items assessing recreation interests were constructed from the literature (Buettner & Martin, 1995; Dunning, 2004; Mickus & Luz, 2002; Friedemann et al., 1997; Lanza, 1997, McGuire, Boyd, & Tedrick, 1999; Tilse, 1997; Wright, 2000). Responses to these items were recorded using a 5-point Likert scale anchored by 1 (*not interested*) and 5 (*extremely interested*).

Relationship Length: The number of years a relationship had existed.

Relationship Proximity: The person with whom the resident had a relationship lived or work at the nursing home or outside the nursing home.

Relationship Quality: Relationship quality was measured using three ordinal categories: (a) very close (VC), (b) not quite so close (NQSC), and (c) other.

Relationship Type: Relationship type was initially measured using seven nominal variables: (a) spouse, (b) child, (c) parent, (d) sibling, (e) other kin, (f) friend, and (g) staff. In most analyses, they were aggregated into four variables: (a) spouse, (b) child, (c) other kin, and (d) non-kin (Lang & Carstensen, 2002).

Resident: A person who lived in a nursing home for three or more months, had a score of 24 or above on their most recent Mini-Mental State Exam, had decisional capacity, and had stable health.

Semi-Private Activities: Recreation activities at which residents interact with family/friends while other residents or staff are near by.

Satisfaction with Emotional Social Support: One of two scores from the Social Support Questionnaire 6 (SSQ6, Sarason, Sarason, Shearin, & Pierce, 1987). Residents were asked their satisfaction with various forms of emotional social support. Responses were recorded using a 6-point Likert scale anchored by 1 (*very dissatisfied*) and 5 (*very*

satisfied). The scale was derived by calculating the mean of these items.

Satisfaction with Social Contacts in Recreation Groups: Residents were asked their satisfaction with various forms of interaction with other residents in groups. Responses were recorded using a 5-point Likert scale anchored by 1 (*almost never true*) and 5 (*almost always true*). The scale was derived by calculating the mean of these items.

Size of Residents' Emotional Social Support Systems: One of two scores from the Social Support Questionnaire 6 (SSQ6, Sarason et al., 1987). Residents were permitted to list up to nine people who provided various forms of emotional social support. The scale was derived by calculating the mean of these items.

Sum of VC and NQSC Relationships: One of two scores derived from the Social Convoys Questionnaire (SCQ, Lang & Carstensen, 1994, 2002; Lang et al., 1998). Residents were permitted to list up to nine people with whom they had very close and not quite so close relationships. The scale was derived by summing the number of VC and NQSC relationships.

Tenure: The length of time a resident lived in the nursing home.

Very Close (VC): A family member or friend who the resident defined as “very close, so close it would be hard to live without them” (Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang et al., 1998, p. P23).

CHAPTER 2. LITERATURE REVIEW

Psychosocial Well-being of Residents

Loneliness is an important concern among older adults including those living in nursing homes (Bondevik & Skogstad, 1996; Dragest, 2004; Pinqart & Sörensen, 2003a; Scocco, Rapattoni, & Fantoni, 2006). Loneliness may be thought of as distress associated with “the perceived absence of satisfying social relationships” (Pinqart & Sörensen, 2003a, p. 111). Two forms are thought to exist, social and emotional loneliness (Perlman, 2004, Weiss, 1973). Social loneliness describes a lack of social contacts and emotional loneliness refers to a lack of emotionally meaningful relationships. In the general population, approximately 30% to 50% of people age 80 and older experience loneliness (Perlman, 1991; Smith & Baltes, 1993) but rates of loneliness among nursing home residents are much higher. In a recent study by Scocco and colleagues (2006), 68 of 100 subjects reported feelings of loneliness and marginalization and their admission to a nursing home appeared to exacerbate this condition.

Loneliness appears to have an adverse relationship on the physical and mental well-being of older adults (Perlman & Russell, 2004). In particular, it is closely associated with depression (Barg, et al., 2006; Eisses et al., 2004; Jongenelis et al., 2004; Stek, Gussekloo, Beekman, van Tilburg, & Westendorp, 2004), a pervasive limitation among nursing home residents. Using a sample of 333 people age 55 and older living in Dutch nursing homes, Jongenelis and colleagues (2004) found that rates of depression were four times higher among nursing home residents than community-based residents. Approximately 25% of nursing home residents had some form of depression and an additional 25% demonstrated sub-clinical signs of the disorder. The impact of loneliness

on residents is perhaps most poignantly illustrated by studies that suggest that it diminishes quality of life and hastens mortality (Pinquart & Sörensen, 2003a; Routasalo & Pitkala, 2003; Russell, Cutrona, de la Mora, & Wallace, 1997; Scocco, et al., 2006).

Psychosocial Well-being of Family Members and Friends

In addition to nursing home residents, the affective well-being of their close family and friends is of concern. People affiliated with nursing home residents often report feelings of role ambiguity and stress (Almberg, Grafstrom, Krichbaum, & Winblad, 2000; Davis & Buckwalter, 2001; Gaugler, Anderson, Zarit, & Pearlin, 2004; Rowles & High, 1996). Conflict between them and formal caregivers often arises as they negotiate quality of care issues (Almberg et al., 2000), health care decisions (Rowles & High, 1996), and caregiving responsibilities (Davis & Buckwalter, 2001). Additionally, the strain associated with nursing home use appears to be a catalyst for revealing latent conflicts among family members (Gaugler, Anderson, Zarit, & Perlin, 2004; Schwarz & Vogel, 1990).

The role ambiguity and stress felt by close family members and friends tends to compromise their well-being (Pinquart & Sörensen, 2003b; Schulz et al., 1997; Schulz & Martire, 2001). Specifically, people who care for older adults without cognitive impairments tend to experience more depression and lower rates of “subjective well-being, physical health, and self-efficacy” than non caregivers (Pinquart & Sorensen, 2003b, p. 258). For people who care for older adults with cognitive impairments, the impact of caregiving on their health is more profound (Pinquart & Sorensen, 2003b) and has been linked with premature mortality (Schulz & Beach, 1999).

Growing Need for Effective Interventions

While the health of nursing home residents and the people they are close to warrants immediate attention, these issues will become increasingly important as the nursing home population burgeons. Despite a decline in the percentage of older adults living in nursing homes, Baby Boomers are maturing at a rate that outpaces advances in medicine and senior housing such that the number of older adults using nursing homes is rising and is likely to continue to do so (Sahyoun et al., 2001). Currently, there are approximately 1.5 million older adults living in nursing homes (U.S. Census Bureau, 2001). If rates of nursing home use continue at the present level, this number is likely to double to 3 million by 2030 (Sahyoun et al., 2001). Even if health and housing innovations are able to reduce the use of nursing homes dramatically, reliance on them is still likely to increase. If nursing home use decreases by 33%, an additional 500,000 beds would be necessary by 2030.

In addition to the growing number of nursing home residents, several changes related to the prospective payment system, shorter stays and higher rates of physical disability, are likely to diminish the effectiveness of traditional approaches to treating loneliness. Typically, formal caregivers place a strong emphasis on developing new friendships among residents (Carpenter, 2002; Gutheil, 1991; McGuinn & Mosher-Ashley, 2000; Nystrom & Segesten, 1996). Beginning and developing new relationships, however, does not occur until the middle and late phases of adjustment (Wilson, 1997) which takes at least three months (Joiner & Freudiger, 1993; Manion & Rantz, 1995). In 1985, the average length of stay in a nursing home was approximately one year. While residents did not have very much time to cultivate and benefit from new relationships, the

ability to do so has further diminished by 32% to approximately nine months in 1999 (Decker, 2005). Residents' ability to cultivate these short-lived relationships is further hampered by increased rates of physical impairments. In 1977, 32.9% of nursing home residents could walk independently but by 1999, only 21.1% of residents could do so (Decker, 2005).

Addressing Resident and Family/Friend Concerns

Addressing loneliness in nursing home residents and role ambiguity and stress in people they are close to is difficult because many factors associated with these issues are immutable. Loneliness in older adults is associated with advanced age (80 and older), being female, not being married (especially widowed or divorced), weak informal support systems, poor health, and low socioeconomic status (Pinquart & Sörensen, 2003a; Wolinsky, Callahan, Fitzgerald, & Johnson, 1992). Living in an institution appears to exacerbate feelings of loneliness (Pinquart & Sörensen, 2003a; Ron, 2004; Routasalo & Pitkala, 2003; Russell et al., 1997; Scocco, et al., 2006) for several reasons. First, increasing the physical distance between residents and people they are close to tends to hinder established patterns of interaction. Using a large ($n = 1,441$) representative sample of residents from 64 nursing homes in Maryland, Port and colleagues (2001) found that contact between older adults and their family members and friends diminished by approximately 50% after nursing home admittance. Two weeks prior to placement, the mean number of contacts between residents and their family members and friends was 37.8. Two weeks after placement, this figure had declined to 19.9 contacts. After controlling for preadmission contact, a regression analysis suggested that the proximity of social network members along with distant kinship, having

dementia, and being black were associated with the decline. These variables accounted for 21% of the variance. Second, procedures designed to address residents' loneliness emphasize the development of new relationships through group programs and largely ignore established ones (Carstensen, 1991). While developing friendships with others living and working within the nursing home can be helpful (Fessman & Lester, 2000; McGilton et al., 2003), the health of other residents, including mobility, sensory, and cognitive limitations, limits the pool of viable or desirable relationships (Kline & Scialfa, 1996; Kovach & Robinson, 1996; Pinquart & Sörensen, 2003a; Port et al., 2001; Russell et al., 1997). Furthermore, friendships that arise between residents tend to be short-lived because of significant changes in health and death (Pinquart & Sörensen, 2003a). Thus, nursing home residents live under circumstances that are associated with or promote loneliness.

Reducing role ambiguity and stress in informal caregivers is also difficult because of factors that are inherent in residential care or compete for caregivers' time and energy (Friedemann et al., 1999). First, as previously discussed, changes in the proximity of residents to people they are close to interferes with established patterns of interaction. Second, family members sometimes have familial or work obligations that limit their involvement in residents' lives. Third, the health of close family and friends tends to limit their ability to interact with residents. The salience of this point is underscored by research which suggests that poor health among caregivers is a primary motivation for care receivers' admission to nursing homes (Duncan & Morgan, 1994). Fourth, nursing home policies and procedures often limit family involvement (Davis & Buckwalter, 2001; Friedemann et al., 1999; Russell & Foreman, 2002; Wright, 2000).

Of the factors associated with loneliness in residents and role ambiguity and stress in the people they are close to, many are difficult or impossible to alter. One exception is nursing home policies and procedures. The need for policies and procedures that facilitate the involvement of close family members and friends in residents' lives is widely recognized (Friedemann et al., 1997, 1999; Gladstone, et al., 2006; Tilse, 1997; Wright, 2000). They are an important source of support, providing assistance with activities of daily living (ADLs) and instrumental activities of daily living (IADLs), monitor and direct the care provided by formal caregivers, and promote residents' psychosocial well-being (Gaugler, 2005, 2006; Gladstone, et al., 2006). Moreover, family member and friend involvement may reduce residents' morbidity. In a large study of residents (n = 2,015) who were recently admitted to 59 randomly sampled nursing homes in Maryland, Zimmerman, Gruber-Baldini, Hebel, Sloane, and Magaziner (2002) found that the percentage of visitors was negatively correlated with rates of infection and hospitalization.

Recreation Interventions

Recreation services, which are often referred to as "activities" or "therapeutic recreation" (Buettner & Martin, 1995), are intended to promote the physical, cognitive, psychosocial, and spiritual well-being of residents (Acello, 2003). The provision of such services was formalized when the U.S. Congress passed the Omnibus Budget Reconciliation Act (OBRA) of 1987. It required all facilities that receive Medicaid and Medicare reimbursement to provide meaningful and appropriate recreation services (Acello, 2003; Hall, Hotelling, & Nolta, 1996). To meet the mandate, these services must be delivered by qualified professionals, based on residents' interests, and designed to

promote residents' well-being. Since many nursing home residents experience loneliness and it has a detrimental influence on their psychosocial well-being, loneliness is a primary concern for recreation providers.

Resident-Centered Groups

Recreation providers typically deliver services to large groups of 20 to 50 residents (Leitner & Leitner, 1996). One reason for doing so is to satisfy nursing home administrators who often judge the success of programs by the number of participants (McGuinn & Mosher-Ashley, 2000). This measure of success, however, appears to be erroneous. Rather than attracting a wide range of residents, groups are often repeatedly attended by the same small set of residents (Buettner & Fitzsimmons, 2003). Consequently, most residents participate in very few group activities. Instead they spend a great deal of time alone watching television or resting (Pruchno & Rose, 2002).

A second, and more important, reason for using large groups is that a high rate of social interaction among residents is thought to promote affective well-being (Carpenter, 2002; Gutheil, 1991; McGuinn & Mosher-Ashley, 2000; Nystrom & Segesten, 1996). In some cases, meaningful relationships among residents occur and promote affective well-being. In general, however, relationships among residents are superficial. Furthermore, there is little evidence to suggest that groups are an effective means by which meaningful friendships are formed. Among residents without cognitive impairments, the converse appears to be true. Interaction with other residents in groups is associated with conflict and participation declines.

Carpenter (2002) surveyed 32 men living in a nursing home for veterans and concluded that support from other residents appeared to have a more consistent influence

on affective well-being than support from family members. Relationships with other residents were associated with reduced depression, higher rates of positive affect, and stronger motivation. The difference between friends and family members may be related to the voluntary nature of friendships or the sharing of common experiences which are tied to age or cohort effects.

The value of relationships among residents is also addressed in a study by Fessman and Lester (2000) who examined loneliness and depression in older adults ($n = 170$) living in a not-for-profit nursing home. The authors concluded that relationships between residents were associated with lower rates of loneliness and depression while relationships with friends outside of the institution were not. These findings, however, were based on data from the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). While this scale is a very reliable and commonly used measure of loneliness (Bowling, 1997; Pinquart & Sörensen, 2003a), it does not discern between social and emotional loneliness (Perlman, 2004). Given that nursing home environments are likely to diminish social loneliness, the results may mask emotional loneliness.

Kiely and colleagues (2000) examined the protective nature of social engagement in a longitudinal study of 927 people living in a Boston nursing home. Social engagement was measured using the six-item scale embedded in the Minimum Data Set, an assessment mandated by OBRA, which includes questions on group participation, informal interaction, self-initiated activities, goals, and engagement in facility life. Using the first annual and the last available assessments, the authors found a negative correlation between social engagement and rates of mortality ($p = .0001$). After controlling for other risk factors associated with mortality through multivariate analyses,

people who had lower rates of social engagement were 1.4 times more likely to die than those with higher rates. The appreciable influence of each type of social integration, however, is unknown since they were aggregated into a single scale.

While some residents develop meaningful relationships that contribute greatly to well-being, contact between residents is often superficial and detrimental. In a study of intimacy among residents, Gutheil (1991) examined the relationships among 77 older adults living in two nursing homes in New York. The results suggested that relationships among the residents in this study lacked intimacy. They did not share personal details about their lives but often talked about experiences associated with living in the facility. In general, these relationships appeared to provide companionship and limited social support. They were “best characterized as friendly relations” (Gutheil, 1991, p. 59).

The superficial nature of relationships among residents is echoed in a study by Powers (1996). The author used qualitative methods to study negative interaction, intimacy, and reciprocity of 69 women and men living in a large urban nursing home. Respondents indicated that their relationships with others at the nursing home lacked the deep familiarity of past friendships and they were reluctant to share intimate details about their lives with people with whom they felt they had little in common. They also described detrimental relationships with others and various strategies used to distance themselves from people with whom they did not want to associate.

The mediocrity of relationships between residents is also evident in a study of roommates. Kovach and Robinson (1996) examined the association of roommate relationships and life satisfaction in 50 residents living in six nursing homes. Results from a simple regression suggested that residents who had a good rapport with one

another, talked and engaged in activities together frequently, tended to have better life satisfaction ($p = .096, r = .238$). Almost half of the residents, however, did not have a good rapport with their roommates and their relationship was unrelated to life satisfaction. Speech and hearing impairments were identified as factors that hindered relationships.

While relationships among residents tend to be superficial, recreation providers attempt to promote meaningful interaction. The primary strategy that they use is resident centered groups. This strategy, however, is not associated with affective well-being and may hinder it. McGuinn and Mosher-Ashley (2000) examined the relative contribution of group and individual recreation activities to residents' well-being. They surveyed 133 residents living in 96 long-term care facilities in Massachusetts regarding the contribution of activity participation to life satisfaction and adjustment to the facility. Using descriptive statistics and various ANOVAs, McGuinn and Mosher-Ashley concluded that the number of group activities residents participated in was not significantly related to either dimension of affective well-being. However, participation in self-generated activities with others, such as board games and cards, appeared to have a positive effect on life satisfaction. They concluded, "in a long-term care setting, the type of activities engaged in appears to be more important than overall frequency" (p. 84). Women and people who were involved in the decision to enter the nursing home were most involved in recreation activities.

A study by Mor and colleagues (1995) highlights the complex relationship among social interaction, affective well-being, and resident centered groups. They examined social engagement of 1,848 residents living in 268 nursing homes in 10 states. The

authors concluded that the amount of time residents participated in recreation activities had a positive relationship with feelings of social engagement. However, participation in group activities tended to heighten conflict between residents with and without cognitive impairments and the participation rates of residents without cognitive impairments tended to decline. Overall, they described residents' quality of life is relatively poor and identified meaningless social engagement is a primary factor.

Lastly, Carstensen, Fisher, and Malloy (1995) found similar results. They examined the relationship between social interaction and cognition in 45 residents living in two nursing homes. The subjects were administered a battery of cognitive and affective assessments and social interaction was measured via instantaneous time sampling over a period of 30 days. On average, residents had meaningful interaction with others less than 20% of the time. Those with higher IQ scores spent the least amount of time outside their rooms. The authors concluded that "the social climate offers few rewards to higher functioning residents" (p.216). They issued three cautionary statements: (a) social interaction may not always be beneficial, (b) remaining in a bedroom is not always a sign of social anxiety, and (c) formal caregivers who influence residents' social interaction based on erroneous assumptions about the benefits of social interaction may cause harm by promoting anxiety.

Recreation providers typically use large groups as a vehicle for service delivery. This method is used because groups are thought to be an efficient means of service delivery and to promote residents' affective well-being. Ironically, groups serve a small proportion of nursing home residents. Moreover, for residents without cognitive impairments, groups appear to detract from emotional well-being by promoting anxiety.

The pervading emotional loneliness is rarely addressed.

Activity Theory

Reliance on resident-centered group activities is consistent with activity theory which explicitly or implicitly serves as the theoretical framework for most nursing home based recreation programs (Carstensen, 1991; John, 1996). Activity theory describes a long held belief that older adults who are more active fare better than those who are not (Lemon, Bengtson, & Peterson, 1972). In particular, it suggests that people who have large social networks, similar to those of young adulthood, tend to age successfully. By interacting with many people, older adults are more likely to meet and develop relationships that provide meaningful affirmation. Recreation programs in nursing homes, therefore, place an emphasis on developing large social networks.

Activity theory is, in part, rooted in role theory which suggests that people derive meaning from the roles that they occupy. It is through roles that people interact with others who provide the affirmation needed to maintain self-concept. In later life, many of these roles, such as worker and spouse, are eliminated or changed dramatically and these changes have a negative impact on affective well-being. Activity theory suggests that older adults who simulate lost roles in their leisure are more likely to develop relationships that provide the feedback necessary for mental health. Intimate activities with important others, especially friends, are thought to be most beneficial because they are most likely to offer meaningful affirmation. Larger group activities are thought to be less beneficial because opportunities for feedback are limited and less personal. Solitary activities are thought to be the least useful because feedback from others is absent.

The tenets of activity theory were partially supported in a methodically rigorous

study conducted by Longino and Kart (1982). They found that older adults who participated in informal groups frequently had high rates of life satisfaction while participation in solitary activities was unrelated to life satisfaction. In addition to examining the relative merits of various types of activities, Longino and Kart (1982, p. 719) concluded that “it is the relationships rather than the activities themselves that are important to self-concept.” The prominence of social context of older adults’ leisure is now widely recognized (Iso-Ahola, 1989; Kelly, 1993; Kelly & Godbey, 1992; Lawton, 1993; Mannell & Kleiber, 1997).

While activity theory pervades literature on older adults’ leisure (Xaverius, 1998), it has been strongly criticized. First, the authors who initially stated the theory acknowledged a lack of empirical evidence within their research to support it. “Overall trends in the data suggest no support for the general set of propositions relating activity to life satisfaction” (Lemon et al., 1972, p. 511). While Longino and Kart (1982) found greater support for the theory, they too had mixed results. Second, activity theory is inconsistent with recent studies of the benefits associated with group and solitary leisure pursuits. In a study of the protective nature of leisure, Lennartsson and Silverstein (2001) examined two dimensions of leisure pursuits in a nationally representative survey of 537 older adults living in Sweden. In contrast to activity theory, they concluded that participation in solitary activities was associated with reduced mortality in older men, even after controlling for functional ability. Furthermore, participation in formal organizations or religious groups was not associated with reduced rates of mortality. Results from a longitudinal study of the leisure pursuits of 3,218 older adults living in Canada also conflicts with activity theory (Menec, 2003). In addition to strong benefits

associated with social activities, results from this study suggest that participation in solitary activities was related to higher rates of happiness. Third, while activity theory suggests that frequent social interaction is linked with affective well-being, this relationship appears to dissolve when physical health is controlled (Lee & Markides, 1990). In sum, the empirical evidence to support activity theory is limited, it conflicts with current research on the benefits of solitary and formal group leisure pursuits, and the link between participation and affective well-being appears to be related to health.

Lifespan Development Psychology

While activity theory suggests that social development is at its height in early adulthood (Lemon et al., 1972), recent evidence from various disciplines in the hard and soft sciences suggest that this and other forms of development occur later in life (Schaie & Willis, 2002). This vein of research is often couched in lifespan development psychology which describes the growth and decline of skills throughout the life course. Lifespan development psychology is based on three primary concepts. First, growth is bound by people's competencies and the demands of their environment (Freund, Li, & Baltes, 1999; Lawton, 1989). Second, resources, including skills, objects, and relationships, are finite and fluctuate throughout the life course (Baltes & Carstensen, 1996; Freund et al., 1999; Lang & Carstensen, 1994). Third, development is a dynamic process. Some aspects improve while others simultaneously degrade (Freund et al., 1999; Lang & Carstensen, 1994). Two key concepts in the latter principle are multidirectional development and multifunctionality. Multidirectional development refers to concurrent growth and recession (Freund et al., 1999). Multifunctionality describes the dynamic relationship between gains and losses. Since resources are finite,

gains, which consume resources, lead to losses and losses, which free up resources, facilitate gains. Using theories based on lifespan development psychology is advantageous because, by taking growth and decline into account, they provide a more accurate model of development in old age (Baltes & Carstensen, 2003).

Socioemotional Selectivity Theory

A leading theory of social interaction which stems from lifespan developmental psychology appears to provide insight into and direction for treating loneliness in nursing home residents. Socioemotional selectivity suggests that motivation for social interaction is primarily based on perceived time left (Carstensen, 1991, 1992, 1998; Carstensen et al., 1999; Lang & Carstensen, 2002). People who anticipate an end to relationships, due to death, extended travel, or other factors, are more likely to spend their limited time on close and important relationships and less on tangential ones. When perceived time left is short, as it is in later life, more meaningful relationships are given priority over peripheral ones. The most meaningful relationships tend to be with close family and old friends. These relationships have weathered disagreements, separation, and harmful influences; they are dependable.

It is important to note that age, in and of itself, is not directly linked to the size of social networks. Younger people with terminal illnesses (Carstensen & Fredrickson, 1998; Pinquart & Silbereisen, 2006) or who are about to graduate (Pruzan & Isaacowitz, 2006) demonstrate a preference for smaller and more intimate social networks. In contrast, older adults who imagine that they have 20 more years to live do not (Fredrickson & Carstensen, 1990) but use intimate relationships as a bridge to the formation of new relationships (Stevens, Martina, & Westerhof, 2006). In general,

however, low amounts of perceived time left and age are highly correlated such that older adults' preferences for social interactions typically follow the pattern describe by socioemotional selectivity theory. This pattern appears to be most apparent in older adults with disabilities (Charles & Carstensen, 1999). As age and functional limitations increase, peoples' resources are taxed and they are forced to prioritize most aspects of their lives, including relationships.

Social Network Composition

Selecting relationships based on perceived time left alters the composition of social networks in two ways. First, discarding peripheral relationships makes social networks smaller (Lang & Carstensen, 1994). Older adults are known to have smaller social networks than younger people (Cumming & Henry, 1961; Gordon & Gaitz, 1976; Harvey & Singleton, 1989; Lawton, Moss, & Fulcomer, 1986-1987; Lee & Markides, 1990). Age related factors that hinder social interaction, including death, changes in social roles, and functional impairments, only account for a small percentage of discontinued relationships (Carstensen et al., 1998; Lang & Carstensen, 1994; Pinguart & Sörensen, 2003a). In addition to these factors, the proactive selection of quality relationships appears to be an important factor in explaining the size of older adults' social networks. Second, older adults' social networks tend to include a high proportion of close and important relationships. Since the number of less important relationships diminishes but the number of important ones remains stable over time, older adults' social networks include a higher proportion of close relationships (Carstensen et al., 1998; Lang et al., 1998).

While activity theory suggests that developing smaller social networks is

problematic (Lemon et al., 1972; Longino & Kart, 1982), socioemotional selectivity theory suggests that this process is helpful, not harmful, for two reasons. First, by purposely excluding meaningless and detrimental relationships, older adults avoid social contacts that consume their limited resources (time and energy). Second, these freed resources may be used to cultivate important relationships and thereby further develop them (an example of multifunctionality). For example, although the oldest respondents in the Berlin Aging Study had the smallest social networks, those in their 90s reported higher rates of feeling close to social network members than those in their 70s and 80s (Lang et al., 1998). The selection of close and important relationships, therefore, appears to be an effective adaptive measure leading to optimal psychosocial well-being.

Socioemotional selectivity theory suggests that older adults choose social contacts based on two factors, the provision of information and emotion regulation (Baltes & Carstensen, 1999; Carstensen et al., 1999; Carstensen et al., 1998; Fredrickson & Carstensen, 1990). As people grow older, the importance of information acquisition appears to diminish while emotion regulation increases. Emotion regulation refers to processes that people use to alter emotions or reactions to them (Carstensen et al., 1998). In particular, older adults increasingly rely on antecedent-focused emotion regulation; avoiding or severing relationships to preempt harmful emotions. This strategy appears to be the more effective way to control negative emotions. The relationships that remain appear to serve two purposes; they are a source of emotional social support or emotionally meaningful (Fung & Carstensen, 2004). If the fulfillment of goals is hindered, relationships that provide emotional social support are preferred. If perceived time left to cultivate relationships is limited, emotionally meaningful relationships are

avored. The latter type of relationship explains why familial relationships which do not provide emotional social support are maintained. When goals and perceived time left are constrained, as they are among older adults with disabilities, people seek both types of relationships. The relative proportion of the types is unknown but Fung and Carstensen (2004) suggest that relationships which provide emotional social support and are emotionally meaningful may be equally represented.

Validity and Generalizability

Socioemotional selectivity theory is supported by an extensive body of innovative and rigorous research (Schulz, 1998). A number of cross-sectional and longitudinal studies have been conducted to substantiate their conclusions (Carstensen, 1992; Carstensen & Fredrickson, 1998; Fung, Carstensen, & Lang, 2001; Fung, Carstensen, & Lutz, 1999, Fung, Lai, & Ng, 2001; Lang & Carstensen, 1994, 2002; Lang et al., 1998). In addition to experimental studies, the influence of time left as a motivator for social interaction is apparent in real-world events (Fung, et al., 1999; 2001). For example, during the research conducted by Fung et al. (1999, p. 595), the government of Hong Kong, from which they drew a sample, was transferred from Great Britain to China creating “a sociopolitical time constraint”. The respondents’ reported a preference for social relationships that is consistent with socioemotional selectivity theory. Anticipating a period of social unrest just prior to the hand-over, younger and older respondents living in Hong Kong reported a preference for fewer and more meaningful relationships. Once the transfer was peacefully completed, preferences for social interaction returned to previous levels.

A number of socio-demographic characteristics are associated with variations in

social network size including personality type, family composition, culture, and cohort membership. The degree to which socioemotional selectivity theory is generalizable to these groups has been addressed in a number of recent studies. Using the NEO-PI, Lang et al. (1998) compared levels of extraversion, openness to experience, and neuroticism to social network size. Variations in the size of social networks were evident among personality types. Extroverts tended to interact with more people than introverts. Feelings of closeness to people within their social circle, however, did not vary significantly by level of extraversion, openness to experience, or neuroticism.

In addition to personality, this study examined the role of family composition in social network size and average emotional closeness. Lang et al. (1998) concluded that respondents who had nuclear families tended to have larger social networks than those without them but feelings of social embeddedness were condensed. Despite larger social networks, respondents were often emotionally close to only a few network members. In the absence of a nuclear family, greater importance was placed on extra-familial relationships. Like respondents with nuclear families, these participants also reported high rates of emotional closeness. These findings illustrate two important points. First, even in the presence of many social opportunities, emotional closeness is reserved for a select few. Second, in the absence of traditional social outlets (the nuclear family), people employ compensatory mechanisms to satisfy needs for social embeddedness. When the results from both parts of this study are combined, social patterns in later life appear to be less influenced by personality type and more influenced by family type (Lang et al., 1998).

Since patterns of social interaction tend to be culturally bound, several studies

have examined the relevance of socioemotional selectivity theory to people from various racial and ethnic backgrounds. The social patterns of people living in the United States and of those living in Hong Kong were examined by Fung, Carstensen, and Lutz (1999), of Americans with African and European ancestry were examined by Fung, Carstensen, and Lang (2001), and of people living in Taiwan and Mainland China were examined by Fung, Lai, and Ng (2001). These studies produced similar results. Consistent with socioemotional selectivity theory, older adults in each study were less likely to maintain peripheral relationships and more likely to attend to meaningful relationships than younger respondents.

In addition to being generalizable to diverse cultures, there is evidence to suggest that socioemotional selectivity is relevant to various generations. Lansford, Sherman, & Antonucci (1998) examined satisfaction with the size of social networks in two cohorts, one surveyed in 1957 and the other in 1976. The sample included a total of 2,264 people whose ages ranged from 21 to 93. Carstensen and Fredrickson (1998) and Pinquart and Silbereisen (2006) studied young people with terminal illnesses; human immune deficiency disease and cancer respectively. Pruzan and Isaacowitz (2006) examined college students who were about to graduate. In all cases, people who's perceived time left to cultivate relationships was short expressed a preference for smaller and more intimate social networks. While not definitive, these studies indicate that socioemotional selectivity theory is generalizable to people regardless of personality type, family status, racial and ethnic background, or generation.

Applicability to Nursing Home and Leisure Research

Although Carstensen's work stems from research on loneliness in nursing home

residents, socioemotional selectivity theory has been applied infrequently to research on social interaction in nursing homes or recreation. The tenets of the theory, however, have been validated in two studies of nursing home residents. Kasser and Ryan (1999) identified a positive correlation between relationships with close family and friends and resident well-being and life satisfaction. Carpenter (2002) concluded that large social networks among residents are not related to feelings of support. Socioemotional selectivity theory has only been used in leisure research in two instances. In both cases, it was applied in studies of volunteerism. While a study by Okun and Schultz (2003) was inconclusive, Hendricks and Cutler (2004) indicate that socioemotional selectivity theory is applicable to leisure research. They used a large ($n = 28,000$) nationally representative sample to examine the hourly participation in volunteer work that was perceived as more and less desirable. Logistic curve analysis revealed a long slow increase in the number of hours devoted to more desirable forms of volunteer work and the converse for less desirable volunteer work. Despite the dearth of research relating this theory to the study of recreation, Carstensen and colleagues (1998) identify leisure as an important realm in older adults' lives to which socioemotional selectivity theory may be applied.

A stronger argument for its applicability to research on older adults' leisure may be found in its congruence with widely held concepts pertaining to recreation. The notion that familiar, rather than novel, relationships are more desirable in later life is consistent with studies of novelty and stability in leisure over the life course. Iso-Ahola, Jackson, and Dunn (1994, p. 245) suggest that the need for arousal varies throughout the life course and that older adults' "need for novelty may be satisfied within a narrower scope of activities." Therefore, expanding or replacing leisure pursuits, including

relationships, appears to be less beneficial in later life (Mannell & Kleiber, 1997). The purposeful and adaptive narrowing of social networks described by socioemotional selectivity is also congruent with leisure specialization. While leisure specialization tends to refer to leisure pursuits (Bryant, 1979; Stebbins, 1992), socioemotional selectivity theory describes a specialization of social relationships. Given the relevance of socioemotional selectivity theory to established concepts in leisure, its prominence in inter-disciplinary research, and the importance of social contacts in older adults' leisure, it appears to be an important tool for explaining and predicting older adults' leisure behavior.

Addressing Residents' Psychosocial Concerns

If socioemotional selectivity theory is used as a framework for service delivery, recreation services should be reoriented to maximize residents' contact with people who are most important to them. Those who are most likely to satisfy needs for intimate contact are close family members and old friends (Carstensen, 1991; Gutheil, 1991; Powers, 1996). In particular, interventions which involve old friends may be somewhat more successful than ones that include family members (Fessman & Lester, 2000; Fung & Carstensen, 2004; Holmén, & Furukawa, 2002; Pinquart & Sörensen, 2003a).

Involving close family members and friends in recreation services has been recommended by several scholars who are concerned about loneliness in nursing home residents. Perlman (2004, p. 185) suggests that "increasing the quality of existing relationships, involving lonely older adults in activities wherein they may develop the types of relationships that they desire with others, [and] increasing companionship relationships for individuals who receive instrumental support from children and other

relatives “ is likely to reduce residents’ loneliness. Similarly, Bondevik and Skogstead (1996, p. 194) indicate that formal caregivers should “arrange for and encourage old people’s contacts with significant others.”

Doing so appears to reduce depression which, as previously noted, is closely associated with loneliness. Martire and colleagues (2004) conducted a meta-analysis of family member involvement in treating chronic illnesses. They reviewed 70 studies that used randomized designs, compared dyadic interventions with usual care, examined family members’ and patients’ outcomes, and targeted at least one of nine aspects of psychosocial well-being. While the meta-analysis included some studies in which patients lived outside of nursing homes, the results suggest that family member involvement in treatment reduces patients’ depression and, in some cases, mortality. Interventions which focused on spouses or couples were thought to be most effective because of their proximity, intimacy, and emotional social support.

While facilitating desirable contact between residents and their close family and friends may mediate emotional loneliness for many nursing home residents, it is not a panacea. “When losses of close confidants are beyond one’s control, and a minimum of needs for contact is no longer met, processes of socioemotional selectivity theory and reducing one’s aspirations may no longer help to prevent loneliness” (Pinquart & Sörensen, 2003a, p. 117). Most residents, however, have close family members and friends in their lives and emphasizing their involvement in recreation appears to be an appropriate strategy for them.

Family Members and Friends

The primary concern of recreation providers is residents’ leisure lives. They,

however, are mandated by OBRA to address family member needs associated with residents' recreation (Acello, 2003). Nursing homes are required to provide space, privacy, and assistance to residents and their family members for visits. They also are required to address family members' grievances and recommendations pertaining to recreation, facilitate interaction among residents' families at group activities, and plan and provide outings for residents and their families. Although these types of activities do occur, they appear to do so infrequently. Communication between recreation providers and family members and friends is generally limited to sharing information about residents' interests and occasional invitations to group programs (Lanza, 1997).

Nevertheless, recreation can be an important vehicle for family member and friend involvement in nursing home life. In a study of the inclusiveness of nursing home policies and procedures, Friedemann and colleagues (1997) surveyed 143 nursing homes in the Detroit metropolitan area using 20 items. Of these, 6 pertained to recreation. Nursing homes encouraged family involvement in residents' lives by providing invitations to some group activities (87%), a private room for visiting (60%), and transportation to the nursing home (1%). They also allowed telephone calls 24 hours a day (80%), visiting 24 hours a day (36%), and guest meals (54%).

Altering recreation policies and procedures to augment the involvement of close family members and friends or promote companion relationships between them and residents is likely to be a welcome change (Carpenter, Van Hartsma, Ruckdeschel, & Lawton, 2000; Friedemann et al., 1997; Gladstone, et al., 2006; Schwartz & Vogel, 1990). In a mixed methods study of family member involvement in nursing homes, most of the 77 people (63%) interviewed indicated that maintaining relationships with

residents was their primary motivation for visitation (Friedemann et al., 1997). They felt that the entertainment and stimulation of residents was very important and made concerted efforts to address residents' needs. "Many took it upon themselves to accompany their relatives to scheduled activities, engage them in other types of activities, or cheer them up in various ways" (Friedemann et al., 1997, p. 534). The willingness of family members to participate in and assume responsibility for residents' recreation is also evident in a study conducted by Schwartz and Vogel (1990). They found that family member involvement was highest in the first year, when residents were adjusting to life in a nursing home, and after three years, when functional impairments were most profound.

Tailoring recreation programs to relationships between residents and the people they are close to is likely to mitigate role ambiguity and stress felt by family members and friends of nursing home residents. Friedmann and colleagues (1997, p. 536) concluded that "inviting them to join in activities [was] found useful by the families as they promoted the kind of communication patterns families reported as strengths" (Friedmann et al., 1997, p. 536). Gaguler, Anderson, Zarit, and Pearlin (2004) also found that involving family members in residents care was beneficial for the family members. Those who actively participated in residents' care tended to have lower rates of role overload and their relationships with residents were more intimate. These conclusions are also supported by the meta-analysis of dyad interventions for treating chronic illnesses (Martire et al., 2004). Results suggest that family member involvement in treatment reduces caregiver burden, depression and anxiety. Although the contribution of dyad interventions in reducing family member depression was small, it was roughly equal

to that associated with psychological interventions in some cases. Interventions which were more successful addressed relationship issues.

Summary

In sum, socioemotional selectivity theory appears to be a useful framework for providing recreation services in nursing homes. It suggests that recreation providers should de-emphasize groups that promote new friendships while increasing programming devoted to relationships between residents and their close family members and friends. For example, recreation staff often take residents out to lunch. In some cases, arrangements could be made for family members to meet residents at the restaurant where they could dine in a semi-private fashion. Another example may be to use e-mail or webcams to maintain and enhance contact with close family members who are geographically separated or augment in-person visits. Emphasizing important relationships in nursing home recreation programs is innovative and several issues need to be addressed prior to exploring the benefits and limitations of this approach. Among these issues are: (a) examining the usefulness of socioemotional selectivity theory as a framework for recreation service delivery, (b) examining the extent to which very close family members and friends are involved in recreation programs, and (c) identifying potential interventions that are of interest to residents and very close family members and friends.

CHAPTER 3. METHODOLOGY

To address these research questions, the following subjects, setting, data collection procedures, and instruments were used. Each aspect of this study was reviewed and approved by the Institutional Review Board and Human Subjects Protection Office at Penn State prior to its inception (IRB# 21849). To preserve respondent well-being, confidentiality was assured and data were coded and held in locked files.

Subjects

Residents

Residents who had a score of 24 or above on their most recent Mini-Mental State Exam, who had decisional capacity (Kolanowski, Buettner, Costa, & Litaker, 2001), lived in the nursing home for three or more months (Joiner & Freudiger, 1993; Manion & Rantz, 1995), and were in stable health were invited to participate in this study. The age of the residents ranged from 35 to 99; the average was 74. The majority of participants were female (65%) and relied on Medicaid (53%). All but two people were Caucasian (97%), the remaining ones were Asian. Most residents were widowed (47%) but some were divorced (23%), never married (15%), married (14%), or partnered (2%). Most participants had a ninth to twelfth grade education (64%) but some had begun an undergraduate degree (11%), completed a graduate degree (9%), an eighth grade education or less (8%), completed an undergraduate degree (8%), or begun a graduate degree (2%). In 1999, a regional and national survey of nursing homes was completed by the U.S. Department of Health and Human Services (Jones, 2002). The northeast region included Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut,

New York, New Jersey, and Pennsylvania. The sample in this study was similar to the regional and national proportion of people who used Medicaid as the primary source of payment (see Table 1). However, the sample was dissimilar to the regional and national demographic profile in several respects. Residents in this study tended to be younger, less likely to be female, more likely to be Caucasian and less likely to be widowed. While the representation of men in this study is particularly strong, the lack of racial diversity limits inferences from the data.

Table 1

Representativeness of Resident Sample

Characteristic	Nation ^a	Region ^a	Study
Age > 64	90%	91%	83%
Age > 84	47%	48%	24%
Female	72%	72%	65%
White Non Hispanic	86%	88%	97%
Widowed	57%	-	47%
Medicaid	59% ^b	62% ^b	61% ^c
n	1.6 Million	383,400	66

^a Data from the National Nursing Home Survey: 1999 Summary (Jones, 2002)

^b Proportion of people who identified Medicaid as the primary expected source of payment

^c While residents in this study were not asked to identify the primary expected source of payment, they were asked if they used Medicaid. If residents used Medicaid it was assumed to be the primary source of payment.

Family Members and Friends

In addition to residents, one person they identified as “very close, so close it would be hard to live without them” (Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang, Staudinger, Carstensen, 1998, p. P23) and who lived outside the residents’ nursing home was interviewed. As expected (Gaugler, Anderson, & Leach, 2003; Kahn & Antonucci, 1980; Wright, 2000), all but one of the 27 very close people interviewed were family. The majority was children (56%) but the sample included spouses (22%), other kin (11%), a parent (4%), and a sibling (4%). The remaining very close person was a volunteer at the nursing home who became a friend (Carstensen, 1991; Gaugler et al., 2003). The age of family/friends ranged from 35 to 85, the average was 59. The majority of family/friends were female (78%) and all were white, non-Hispanic. Most family/friends had completed an undergraduate degree (37%), but some had a ninth to twelfth grade education (30%), begun an undergraduate degree (15%), completed a graduate degree (11%), an eighth grade education or less (4%), or begun a graduate degree (4%). In 1997, Friedemann and colleagues conducted a study of dyads that included nursing home residents and family members. The demographic profile of the family members in Friedemann’s study was very similar to that of the family/friends in this study; they were an average age of 53 years old, more likely to be female, and more likely to be white non-Hispanic.

Settings

Soliciting respondents from a single nursing home would have eliminated the confounding effect of location, but obtaining an adequate sample of qualified residents in a single location was impractical due to the prevalence of cognitive impairments and

short stays (Sahyoun et al., 2001). While the proportion of residents who were eligible for this study varied by facility, overall, only 9% of residents met the admission criteria. A total of 19 nursing homes were contacted, 11 in or near Centre County, PA and 8 in or near Tompkins County, NY. Ten nursing homes did not participate in the study. Staff at two facilities did not respond to the solicitation, recreation department heads at three facilities did not have time to participate in the study, and Administrators at five facilities declined to participate in the study or did not return telephone calls. Of the nine facilities that participated in the study, five were located in PA and four in NY, a response rate of 47% (see Table 2). All but two of the facilities accepted Medicaid. The primary regulatory agencies which oversee nursing homes and grant access to public funds are states' Departments of Health. Reviews of full surveys, also known as Medicare/Medicaid recertification surveys, preceding data collection revealed that the recreation programs in all but one of the facilities met the standards of the respective state (New York Department of Health [NYDOH], 1/4/2005, 4/27/2005, 7/13/2005, 9/22/2005; Pennsylvania Department of Health [PADOH], 6/3/2005, 7/8/2005b, 7/22/2005, 12/15/2005). The remaining facility, NH1, was sanctioned for two patterns of behavior which caused minimal harm to residents. On June 2, 2005, it was cited for providing inadequate access to activities (PADOH). On March 5, 2005, it was cited for providing too few programs on weekends and did not meet the needs of a resident who had hearing and speech impairments (PADOH). While this facility had a history of activity deficiencies, the recreation director was replaced and multiple abbreviated surveys over a six month period prior to data collection indicated that the department was

providing adequate care (PADOH, 6/21/2005, 6/30/2005, 7/8/2005a, 8/5/2005, 8/18/2005, 10/14/2005, 11/9/2005, 1/13/2006).

Recruitment

Residents

Recruitment of nursing home residents involved several logistical steps. First, permission to contact residents and the cooperation of nursing home staff was obtained. Second, nursing home staff screened the residents to determine who met the inclusion criteria and invited them to attend an informational program about the study. Sarah Burnett-Wolle conducted the informational program which included: (a) a brief description of her work in nursing homes, (b) the rationale for the study, (c) the tasks involved in the study, and (d) a question and answer period. Initially, residents were offered a packet which included information on the study, a pre-addressed stamped recruitment flyer, and a telephone number so they could contact Sarah Burnett-Wolle to ask additional questions or indicate an interest in participating in the study (see Appendix B for resident recruitment packet). The recruitment packets were successful at NH1, the first facility surveyed, but only because the recreation staff met with each resident who attended the program and filled out and mailed the form for those who were interested in participating in the study. Since staff at most facilities were unlikely to do the same, the recruitment strategy was altered. After the informational program, residents who were interested in participating in the study made an appointment with Sarah Burnett-Wolle to be interviewed. Additionally, all residents were offered the recruitment packet so they could contact Sarah Burnett-Wolle to ask additional questions or indicate a subsequent

interest in participating in the study. This recruitment packet did not function as it was intended; residents did not independently use the form or telephone number provided.

Nursing home staff provided information on the number of people who met the inclusion criteria. Initially, 127 residents were eligible for the study and 69 indicated an interest in participating in it (see Table 2). In most cases, residents were interviewed within two weeks of the informational program. In the interim, however, two became ineligible for the study because of ill health and one decided not to participate because discussing family issues was upsetting. The latter resident was upset because the person she was closest to, her mother, had recently been admitted to another nursing home and they were unable to see one another. In sum, 125 residents were eligible for the study and 66 were willing to participate at the time of the interview, a response rate of 53%.

Table 2

Response Rate by Nursing Home

Nursing Home	Beds ^a	Eligible	n	Response Rate
<u>Pennsylvania</u>				
NH1	240	17 (7%)	9	53%
NH2 ^b	116	19 (16%)	3	16%
NH3 ^b	32	6 (19%)	3	50%
NH4	240	15 (6%)	10	67%
NH5	102	15 (15%)	5	33%
<u>New York</u>				
NH6	260	18 ^c (7%)	13 ^c	72%
NH7	120	14 (12%)	6	43%
NH8	80	10 (13%)	8	80%
NH9	200	11 (06%)	10 ^d	91%
Total	1390	125 (9%)	66	53%

^a This figure represents the total number of beds in the facility. It was used as the denominator to determine the proportion of residents who were eligible for the study. Doing so underestimates the proportion of residents who were eligible for the study slightly because nursing homes are rarely filled to capacity. Historically, the nursing homes in NY had occupancy rates of 84% to 97% (NYDOH, 2007a, 2007b).

^b Nursing home does not accept Medicaid.

^c Two people signed up for but never participated in the study because of a change in health. These people were not included in the count.

^d One person signed up for but never participated in the study because discussing family issues was too upsetting. This person was not included in the count.

Family Members and Friends

Recruitment of very close family members and friends also involved several logistical steps. First, residents were asked to identify very close family members or friends and if Sarah Burnett-Wolle could interview one of them. Of the 66 residents, 5 did not have very close family/friends, 17 refused to provide contact information, 6 provided insufficient contact information, and 1 provided contact information but then withdrew from the study. Most residents who refused to give contact information said their loved ones did not have time for the study. In the hope that residents would discuss the study with their loved ones and family/friends would be interested in it, a recruitment packet was left with residents for family/friends. Like those used to recruit residents, the packets included basic information on the study, a pre-addressed stamped recruitment flyer, and a telephone number so family/friends could contact Sarah Burnett-Wolle to ask questions or indicate an interest in participating (see Appendix C for family/friend recruitment packet). This recruitment packet was not very effective; the form was only used on two occasions and the telephone number was not used. While only conjecture, residents may not have passed the family/friend recruitment packet to loved ones because they felt the study was too time-consuming. If residents provided insufficient contact information, they were contacted a second time to clarify it but, in most cases, to no avail. In one instance, a resident withdrew from the study after completing all of the resident interviews. While the resident did not specify why she withdrew, her son had a terminal illness and she became tearful while discussing him during the survey.

Second, a family member or friend was selected at random by drawing a number out of a hat and contacted by letter and telephone. If the initial family/friend did not

respond to the solicitation, the procedure was repeated until an interview was completed or all contacts were exhausted. Family/friends were not eliminated from the pool of potential subjects until they failed to respond to two letters of introduction and three phone calls at different points in the day. Of the 37 family/friends contacted, 9 did not respond to the solicitation, 1 refused to participate in the study, and 27 participated in the study (a response rate of 73% of family/friends contacted). The family member who refused to participate did so because she had not been paid \$30 for participating in another, unrelated study conducted by Penn State.

While the sample of 66 residents and 27 family/friends fell far short of the target sample of 100 dyads; the response rate of 53% for residents and 73% for family/friends contacted was slightly higher than expected. Port and colleagues (2001) solicited an initial sample of 241 dyads which included a resident and family member but a response rate of 42% reduced the final sample to 100 pairs.

Data Collection

A three pronged approach was used to gather data. First, residents completed a survey to identify important social contacts, sources of emotional social support, satisfaction with social contacts in resident centered group activities, and interest in various activities that involve close family members and friends. Second, residents completed a series of seven Yesterday Interviews to assess how many group activities they attended in a week and the quality of social contacts at those activities. Third, family/friends completed a survey to assess how nursing home policies and procedures shape interactions between them and residents as well as to identify activities that may promote their relationships.

Resident Surveys

Sarah Burnett-Wolle interviewed residents in person. While most residents chose to meet in their rooms, some preferred to do so in common areas. The meetings began by reviewing the consent form silently or out loud at the residents' discretion (see Appendix D for the resident consent form). Sarah Burnett-Wolle read each item out loud (see Appendix E for the resident survey) and occasionally used large print graphics to facilitate communication (see Appendix F for resident graphics). Resident interviews took between 30 and 90 minutes to complete but typically lasted 45 minutes. Upon completion of the survey the resident was given a token of appreciation to acknowledge their valuable contribution to the study. The token of appreciation was an easy-grip pen, a box of note cards, and stamps. In three instances, close family/friends were present during the interview. Their presence, however, did not appear to compromise the data. In a few cases, the interview took two or three sessions because of visitors, treatment, or fatigue but most were completed in a single session. After administering the survey to the first nine people, nine questions were altered (see Appendix G for resident survey alterations). These people were revisited to address questions that were reworded, replaced, or added.

Resident Yesterday Interviews

Prior to interviewing residents, Sarah Burnett-Wolle met with recreation staff to obtain monthly calendars and to identify sensory stimulation activities. These activities were crossed off the calendars and not addressed during the yesterday interviews because they were only attended by residents who had severe cognitive impairments. At the end of the survey, Sarah Burnett-Wolle reviewed the calendar with the resident to complete

the first of seven Yesterday Interviews (see Appendix H for a single yesterday interview). Each one took approximately five minutes to complete. Afterward, residents were told that Sarah Burnett-Wolle or a research assistant would visit each day for the following six days to fill out the remaining Yesterday Interviews.

A total of six research assistants (Christina DeCesare, Nancy Funk, Valerie Maines, Barbara Metzner, Rebecca Ribeiro, and Lynn Rogers) were hired to administer yesterday interviews. Qualified individuals either worked or had extensive personal experience with nursing home residents. To preserve residents' well-being and the quality of the data, research assistants completed the IRB training module, signed an IRB confidentiality agreement, and met with Sarah Burnett-Wolle for an individual training session. The training consisted of: (a) an explanation of the purpose and content of the study, (b) an explanation of how to complete the yesterday interviews, (c) the administration of two yesterday interviews based on a video of a fictitious resident, (d) instructions regarding residents' right to refuse and confidentiality, and (e) how to communicate with Sarah Burnett-Wolle. Research assistants were paid \$30 for training, \$15 per resident, and, in one case, mileage. The second of the two yesterday interviews of the fictitious resident was used to analyze inter-rater reliability. All but one of the interviewers coded the video correctly. The remaining interviewer omitted one response but, when compared to the master interview, Cohen's k was .82 and suggested strong inter-rater reliability (Eslea, 1996).

In addition to collecting the initial yesterday interview for all residents, Sarah Burnett-Wolle collected all or some of the remaining interviews at NH1, NH2, NH3, and NH7. Barbara Metzner and Christina DeCesare also collected interviews at NH2 and

NH7 respectively. Valerie Maines collected the remaining interviews at NH4. Lynn Rogers collected the remaining interviews at NH5. Rebecca Ribeiro collected the remaining interviews at NH6. Lastly, Nancy Funk collected the remaining interviews at NH8 and NH9.

Two minor irregularities occurred during the administration of the yesterday interviews. First, a research assistant encouraged a resident to attend group activities after several interviews and obtained help from staff to facilitate this. The research assistant was asked to discontinue this practice to preserve the integrity of the data. Second, two research assistants left a few items blank but were able to recall accurate answers when prompted. In sum, these few issues appeared to have little effect on the quality of the yesterday interview data.

After administering the Yesterday Interviews to the first nine people, one question was eliminated from each set. Originally, residents who stated that they did not go to an activity were asked “What was the primary reason you did not go?” Some residents responded in a defensive manner to this question. Since it did not address a primary research question and retaining respondents was critical, the question was eliminated.

Family Member and Friend Surveys

Once the yesterday interviews for a facility were complete, very close family member or friends associated with that facility were interviewed by Sarah Burnett-Wolle. Most family/friend interviews were completed via telephone but four were done in-person and one by e-mail at the respondents’ request. Of the family/friend interviews done in person, the resident was present on three occasions. Variations in the administration of the family/friend interviews did not appear to alter the integrity of the

data. Once the consent form was reviewed and verbal assent given, the interview began (see Appendix I for family/friend consent form). Close family member/friend interviews took approximately 20 minutes to complete (see Appendix J for family/friend survey). Family/friends were mailed or given a thank you letter and token of appreciation to acknowledge their contribution to the study. The token of appreciation was an easy-grip pen, a box of note cards, and stamps.

Instrumentation

Comparing Nursing Homes

To examine the similarity of recreation programs at the data collection sites, recreation directors were asked to provide an estimate of the number of residents they serve and group activities provided in a week. They were also asked questions constructed from the literature that examine policies and procedures that shape interaction between residents and their very close family members and friends (see Appendix K for recreation director survey) . Most of these items were based on findings from a mixed methods study (Friedemann et al., 1997) which has been frequently used to examine family involvement in nursing homes (Gaugler, Anderson, & Leach, 2003; Gaugler, Leach, & Anderson, 2004; Haigler, Bauer, & Travis, 2004). The work of Friedemann and colleagues is based on a line of research that suggests that family members play four roles in residents' lives: (a) team member, (b) learner/patient advocate, (c) servant, and (d) visitor/entertainer (Montgomery, 1982). All items pertaining to the visitor/entertainer role of the quantitative portion from Friedemann's study were used with permission of the lead author. Support for many of these items is provided by a qualitative study of the purpose and meaning of family members in

Australian nursing homes (Tilse, 1997). Both studies suggest that family members should have free access to residents via in-person visits and telephone as well as be included in meals and outings sponsored by the nursing home. Several other recommendations for enhancing family member involvement come from a study of English nursing homes (Wright, 2000), a text book on recreation services in nursing homes (McGuire, Boyd, & Tedrick, 1999), and three practitioner manuals (Acello, 2003; Buettner & Martin, 1995; Lanza, 1997). Additionally, questions pertaining to internet-based communication were included since it is becoming an increasingly important vehicle for maintaining relationships (Dunning, 2004; Mickus & Luz, 2002). All but a few items are supported by multiple references. Since privacy appears to be crucial to residents' well-being, socioemotional selectivity theory suggests that excluding relationships that are less meaningful promotes affective well-being (Carstensen & Fredrickson, 1998; Carstensen, Gross, & Fung, 1998; Carstensen, Isaacowitz, & Charles, 1999), the literature suggests that privacy is an important aspect of visits (Wright, 2000), and OBRA regulations set standards for privacy (Acello, 2003), several versions of questions examining the availability of privacy during visits, meals, and outings were used. The 19 items were measured using four responses, similar to those used by Friedemann and colleagues (personal communication, May 14, 2005). They were altered slightly from "mandatory, available and encouraged, available at family or patient request, available but not encouraged, and not available or not encouraged" to "available and encouraged, available at family/friend or resident request, available but not encouraged, and not available or allowed" to suit the subject and sample of this study.

Research Question 1

The first research question, which concerns close and important people in residents' social networks, was addressed using a modified version of the Social Convoy Questionnaire (Kahn & Antonucci, 1980; Lang & Carstensen, 1994, 2002; Lang et al., 1998). Traditionally, social network assessments use categories such as family, friend, and neighbor as proxies for relationship quality (Katz & Lyerly, 1963; Lemon, Bengston, & Peterson, 1972; Parkerson, Broadhead & Tse, 1992). While respondents often indicate that relationships with nuclear family members are most important (Carstensen, 1991; Gaugler, Anderson, Leach, 2003; Wright, 2000), assuming that this is always the case or that relationships within a category are equally important is likely to distort reality. In contrast, the Social Convoy Questionnaire defines relationship quality and uses free recall to generate names of people who fit each category. This measure has been used in several studies that include older adults living in institutions (Lang & Carstensen, 1994; Lang et al., 1998). Therefore, it was an appropriate instrument for nursing home residents.

The residents were presented a blank copy of the diagram (Kahn & Antonucci, 1980). "Pointing to the word I in the center of the diagram" (Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang et al., 1998, p. P23), the interviewer explained that "this is you in the middle" (Kahn & Antonucci, 1980, p. 280). Pointing to the space between the I and inner circle, respondents were asked the first names or initials of people they were "very close [to], so close it would be hard to imagine life without them" (Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang et al., 1998, p. P23). Pointing to the space between the inner and outer circle, respondents were asked to identify people who they do "not feel

quite so close [to] compared to those in the inner circle, but who are still very important". While the original instrument included two additional categories, less close and not close at all, they were beyond the scope of this study and not addressed. Closeness, therefore was measured using two discrete categories, very close (VC) and not quite as close. This questionnaire produces two scores (Lang et al., 1998). First, the number of relationships in each category was identified. Second, overall closeness to people in the respondents' social networks was calculated by multiplying the number of social contacts identified as very close and not quite so close by 3 and 2 respectively and calculating the grand mean. To relate the findings to literature that uses traditional assessments of social networks and differentiates between friends within and outside of the nursing home, the type of relationship (Kahn & Antonucci, 1980; Lang & Carstensen, 2002), length of relationship (Lang & Carstensen, 2002), and residence (Carpenter, 2002; Fessman & Lester, 2000; Gutheil, 1991) of the social contacts were assessed.

Some respondents indicated that they were close to a group of people, such as staff or nurses. In such cases, probes were used to identify specific individuals. In a few instances, respondents identified social partners during the course of the interview that were not mentioned during the Social Convoy Questionnaire. The respondents were asked if these individuals fit one of the categories and added accordingly (Lang & Carstensen, 1994; Lang et al., 1998). For the purposes of this study, respondents were permitted to list up to nine people in each of the two categories (Sarason, Sarason, Shearin, & Pierce, 1987).

Research Question 2

Socioemotional selectivity theory suggests that emotion regulation is the underlying motivation which shapes the retention and dissolution of relationships. There appears to be two types of relationships that promote emotion regulation, ones that are emotionally meaningful and ones that provide emotional social support (Fung & Carstensen, 2004). The former is described as the selection of a “social partner because he/she is emotionally important to the individual” and the latter as the selection of a “social partner because he/she makes the individual feel good” (Fung & Carstensen, 2004, p. 74). The distinction between the two types is exemplified by the maintenance of an abusive relationship with a nuclear family member. Such a relationship may be emotionally meaningful but not provide emotional social support. Emotionally meaningful relationships are thought to take precedence when perceived time left is limited. Relationships which provide emotional social support are thought to take precedence when goal attainment is inhibited. When both are constrained, as they are for most nursing home residents, both motivations appear to influence the retention and exclusion of social contacts. The degree to which emotional meaning and emotional social support influences behavior is unknown, “further studies on the similarities and differences of these two types of emotional social goals are likely to greatly advance the literature on social motivation” (Fung & Carstensen, 2004, p. 76).

The second research question addresses this issue; it examines the link between close and important relationships and emotional social support (Fung & Carstensen, 2004). Emotional social support was assessed using the Social Support Questionnaire 6 (Sarason et al., 1987). This measure is particularly useful because, unlike most measures

which include instrumental and informational social support, the Social Support Questionnaire 6 (SSQ6) focuses on emotional social support exclusively (Bowling, 1997). In addition to addressing the type of social support which pertains to socioemotional selectivity theory, nursing home residents, by definition, receive high rates of instrumental and informational support from formal caregivers (Sahyoun et al., 2001) so measuring these types of support is unlikely to clarify residents' relationships.

The SSQ6 results in two scores, the number of supporters and satisfaction with support. The internal consistency of the components of the SSQ6 is strong, 0.90 and 0.93 respectively. Sarason, Levine, Basham, and Sarason, (1983) suggest that the psychometric properties of the SSQ6 are very similar to those of its parent instrument, the Social Support Questionnaire (SSQ). Construct validity of the SSQ has been established and predictive validity is adequate (Bowling, 1997). The SSQ is widely used (Alemi et al., 2003) and has been applied to older adults in several studies (Dagnan & Ruddick, 1997; Ethgen et al., 2004). Therefore, the SSQ6 was an appropriate instrument for nursing home residents. A 6-point Likert scale anchored by very dissatisfied and very satisfied was used to assess satisfaction.

Research Question 3

The third research question, which concerns attendance and social contacts in group activities, was addressed using a set of modified Yesterday Interviews (Moss & Lawton, 1982). The Yesterday Interview was designed, in part, to accurately document older adults' leisure activities. Typically, it involves a highly structured in-person interview in which respondents' actions during the previous day are outlined in 15 minute blocks. Respondents report on what they did and who they spent their time with from the

moment they woke up until the moment they went to sleep. Restricting the time frame to the previous day minimizes recall inaccuracies associated with traditional inventories of leisure pursuits (Chase & Godbey, 1983). The Yesterday Interview has been used in numerous studies of older adults living in nursing homes (Horgas, Wilms, & Baltes, 1998; Lang, Rieckmann, & Baltes, 2002; Pruchno & Rose, 2002). Therefore, it was an appropriate assessment for the subjects in this study.

While the Yesterday Interview is an accurate method for recording frequently occurring events (Zuzanek, 1991), such as group attendance, this study concerns infrequent and frequent events. Many family and friends visit on a weekly basis (Gaugler, 2005; Lanza, 1997; Port et al., 2001). Therefore, a traditional Yesterday Interview would be unlikely to capture their involvement in groups. A second data collection strategy, Experiential Sampling Method, is often used to collect data on infrequent leisure pursuits (Mannel & Dupuis, 1994). Typically, the Experiential Sampling Method (ESM) involves the assignment of beepers to respondents who are randomly signaled to independently complete a series of very short assessments (Larson & Csikszentmihalyi, 1983). While many aspects of this strategy are advantageous, it appears to be inappropriate in nursing homes for several reasons (Voelkl, 1990; Voelkl & Birkel, 1988; Voelkl & Brown, 1989; Voelkl & Nicholson, 1992). First, the current cohort of residents is unfamiliar with the technology and operating the beepers appears to diminish the accuracy of data collection. Second, the intrusive and revealing pager signals tend to inhibit timely data collection and compromise respondent confidentiality.

To accurately collect data on infrequent and frequent events in an unobtrusive manner, a hybrid of the Yesterday Interview and ESM was used in this study. Combining

these methods appears to be a valid strategy since they produce similar results regarding occupation and social contacts (Klumb & Baltes, 1999). Residents were administered a series of seven abbreviated Yesterday Interviews. Using the facilities' activity calendar as a guide, residents were asked if they participated in group activities on the previous day and the quality of social contacts at those activities. The only activities that were not addressed were sensory stimulation, which are designed for people with severe cognitive impairments and not attended by respondents in this study. Relationship quality was assessed using the categories described in the Social Convoy Questionnaire (Kahn & Antonucci, 1980; Lang & Carstensen, 1994, 2002; Lang et al., 1998). Residents were asked one to four questions per activity and there was an average of three activities per day.

Research Question 4

The fourth research question concerns variables associated with participation in recreation groups. In addition to demographic variables which are associated with recreation participation (Agahi, Ahacic, & Parker, 2006; Strain, Grabusic, Searle, & Dunn, 2002) the contributions of variables associated with socioemotional selectivity theory were examined. In particular, satisfaction with social contacts in group activities was addressed using the social network subscale from the Leisure Satisfaction Scale (Beard & Ragheb, 1980). The Leisure Satisfaction Scale (LSS) is one of the very few standardized measures on this subject (Mannell & Dupuis, 1994). Content validity for the whole instrument was established using a panel of 160 experts who teach, research, or provide recreation services. A reliability analysis of the instrument and the social subscale reveal that they have strong internal consistency, 0.96 and 0.88 respectively.

The social subscale emerged clearly in a factor analysis of the instrument that includes sections on psychological, educational, relaxation, physiological, and aesthetic aspects of leisure. The LSS has been used in numerous studies that involve older adults (Kaufman, 1988; Mahon & Goatcher, 1999; Zoerink, 2001) as well as one study that involved seniors living in institutions (Savell, 1991). Therefore, it was an appropriate instrument for the nursing home residents in this study. To ensure that residents only reflected on group activities when they considered satisfaction, the phrase “my leisure” in the questions was replaced by the word “group”. Responses were measured on a 5-point Likert scale, which was anchored by the phrases *almost never true* and *almost always true*.

Research Question 5

The fifth research question pertains to very close family members and friends only. It concerns ways in which nursing home policies and procedures shape their involvement with residents at the nursing home. This question was addressed using items constructed from the literature (Buettner & Martin, 1995; Friedemann, Montgomery, Maiberger, & Smith, 1997; Lanza, 1997, McGuire et al., 1999; Tilse, 1997; Wright, 2000). The items are similar to the ones used to compare nursing homes. Very close family members and friends were asked about policies and procedures that permit public and private visits, meals, and outings. However, questions pertaining to internet-based interaction were not included in this section since they are not typical means of communication or readily available at most facilities. To determine how often each item occurred, regardless of availability, the 5-point Likert scale used by Friedemann (personal communication, May 14, 2005) was changed from all the time, whenever offered, often,

sometimes, and never to all the time, often, sometimes, rarely, and never. A factor analysis of Friedemann's instrument, which included many items pertaining to nursing care as well as recreation services, suggested that these items should not be aggregated into a scale.

Research Question 6

The sixth research question, which concerned potential interventions, pertained to both residents and very close family members and friends. Using questions similar to those used to compare nursing homes and in research question 5, both groups were asked about their interest in various types of indirect contact, visits, meals, and outings (Buettner & Martin, 1995; Dunning, 2004; Mickus & Luz, 2002; Friedemann et al., 1997; Lanza, 1997, McGuire et al., 1999; Tilse, 1997; Wright, 2000). Close family members and friends were asked one item that residents were not, interest in receiving a recreation calendar. It was assumed that residents had monthly recreation calendars since providing them is a standard practice for meeting NYDOH and PADOH regulations. In total, 18 and 19 items were used to examine residents' and close family members/friends' respective interest in various activities or forms of assistance. Responses were measured on a 5-point Likert scale anchored by the phrases *not interested* and *extremely interested*.

To identify viable forms of interaction between residents and family/friends, very close family members and friends were asked about four dichotomous items regarding their ability to participate in various types of contact. They were asked if they were able to easily access and use a telephone, access and use the internet, go to the nursing home, and take a resident on outings.

Demographics

In addition to the items that address research questions, information on demographic characteristics was gathered from residents and family/friends. This section included items that addressed gender, marital status, children, race, age, education, nursing home tenure, Medicare use and Medicaid use. The latter variable was used as a proxy for financial status. A single person with less than \$8,400 in annual income and \$4,200 in assets is eligible for Medicaid in New York (NYDOH, 2007). A single person with less than \$22,428 in gross annual income is eligible for Medicaid in Pennsylvania (Pennsylvania Department of Public Works, 2007). The phrasing of these items came from a study of older adults' living arrangements (Gerontology Institute & Bronfenbrenner Life Course Center, 2001-2002) and a study of barriers to family involvement in nursing homes (Port et al., 2001). They were used to provide descriptive information and as independent variables in regressions since they are associated with variations in leisure participation (Mannell & Kleiber, 1997; Port et al., 2001).

Refining Instrumentation

Several procedures were used to refine the instrumentation in this study. First, a panel of three researchers who have expertise in socioemotional selectivity theory were hired as consultants to review and comment on the assessment instruments. In particular, they were asked to examine the constructed items. The consultants included Drs. Frieder Lang, Richard Ryan, and Kathryn Betts. Professor Frieder Lang, of Martin-Luther-Universitat in Halle-Wittenberg Germany, has been and continues to be intimately involved in the development and validation of socioemotional selectivity theory. He has co-authored numerous publications with Dr. Carstensen on the subject. Professor

Richard Ryan, of Rochester University in NY, is best known for co-authoring self-determination theory but has also applied socioemotional selectivity theory to nursing home residents (Kasser & Ryan, 1999). Assistant Professor Kathryn Betts Adams, of Case Western Reserve University in OH, developed an assessment for nursing home residents based, in part, on socioemotional selectivity theory. While all of the consultants felt the items were well written and appropriate, Dr. Lang provided several important suggestions which were incorporated. He recommended that items which assess perceived time left be added to the resident survey and yesterday interviews and suggested text. Second, the residents survey was administered to nine residents and minor alterations made (see Appendix G for resident survey alterations).

CHAPTER 4. ANALYSES

Data Preparation

SPSS (2006) version 15.0 with exact tests was used to analyze the data. After the data were entered, they were double checked for accuracy and one duplicate case was removed. Five categories were used to document user missing values (95 = *refused*, 96 = *resident unavailable*, 97 = *not applicable*, 98 = *don't know*, 99 = *unrecorded*). While the proportion of user missing data in this study was generally small, the use of a listwise procedure was avoided since it reduces the sample size. Several techniques were used to replace missing values: (a) logic, (b) related scores, and (c) measures of central tendency. They were applied in that order. While using measures of central tendency produces a conservative Pearson r coefficient (Grafe, 2004) there were two reasons for doing so. First, most items were missing 5% or less of the values and “almost any procedure for handling missing values yields similar results” when the proportion of missing data is small (McDermeit, Funk, & Dennis, 1999; Tabachnick & Fidell, 2001, p. 59). Measures of central tendency were only used to replace more than 5% of the missing data in two variables, resident interest in pet visits (6%) and family/friends' permission to have private parties (7%). Second, the covariates were often used in subsequent analysis and incorporating them in a random assignment within groups technique would bias the results. If measures of central tendency were used to replace missing values, the score used varied by the distribution and type of the data (McDermeit, Funk, & Dennis, 1999). If the data were normally distributed, the missing values were replaced with the mean. If the data were skewed, the missing values were replaced with the median. If the data were categorical, the missing data were replaced with the mode. Before applying the related

scores and measures of central tendency missing data techniques, the randomness of the missing values was examined. “When the missing responses are scattered randomly throughout the data, the problem is typically not serious” (Grafe, 2004, p.1; Tabachnick & Fidell, 2001). Their randomness was examined by recoding each item into a dichotomous variable describing complete (0) and incomplete (1) cases and comparing it to a likely covariate. If the groups were not significantly different, the missing values were assumed to be randomly distributed and replaced. If the proportion of missing data exceeded 15% or did not appear to be randomly distributed, the missing values were not replaced (Tabachnick & Fidell, 2001).

When the distribution of the data was skewed, two attempts were made to normalize it (Field, 2005; Mosteller & Tukey, 1977). First, transformations, including log, square root, reciprocal, 2nd power, and 3rd power, were applied to data that was positively skewed. If the data were negatively skewed, the data were reverse scored and transformations applied. Second, if outliers (standardized scores > 3.29) existed, the values were replaced with the next highest score + 1, the mean + 3 standard deviations, and the mean + 2 standard deviations. The former normalized the data occasionally and the latter strategy was not successful (see Appendix L for a Code Book).

Resident Survey

Social Convoys Questionnaire

The Social Convoys Questionnaire (SCQ) was used to assess residents’ social contacts (Kahn & Antonucci, 1980, Lang & Carstensen, 1994, 2002; Lang et al., 1998). Using free recall, residents were asked to identify up to nine people they felt “very close to, so close it would be hard to live with out” (VC) and to describe the type, length, and

proximity of relationships. Using a similar method, they were also asked to identify up to nine people they felt “not as close to compared to those in the previous group, but who are still very important” (NQSC) and describe these relationships. Data associated with the Social Convoys Questionnaire did not have missing values except for a two responses regarding relationship length.

One resident could not recall the length of a VC relationship with a niece. The missing value was replaced using the individual’s mean length of relationships with nephews. Prior to replacing the missing value, the mean was 41.89 ($sd = 16.89$) and median = 43.42 ($ICQ = 22.09$). After replacing the missing value, the mean was 41.96 ($sd = 16.88$), median = 43.42 ($ICQ = 22.09$), and distribution was normal ($W(60) = .98, p > .05$).

Length of NQSC relationship was missing 5% of the data which were categorized as don’t know (10) or unrecorded (1). As before, three missing values were replaced using the respondent’s mean length of a similar type of relationship. The remainder was not replaced because a measure of central tendency was likely to be an unrealistic estimation. For example, two missing values were associated with a mother and daughter and, logically, they could not have the same age. Prior to replacing the missing values, the mean was 29.68 ($sd = 21.71$) and median = 30.50 ($IQR = 39.60$). After replacing the missing values, the mean was 29.63 ($sd = 21.71$), median = 30.50 ($IQR = 39.60$), and distribution was not normal ($D(53) = .13, p < .05$).

The mean length of relationships, regardless of VC and NQSC designation, was also calculated. Prior to replacing the missing values, the mean was 35.72 ($sd = 15.22$) and median = 34.56 ($IQR = 22.79$). After replacing the missing values, the mean was

35.72 ($sd = 15.22$), median = 34.56 ($IQR = 22.79$), and distribution was normal ($W(65) = .97, p > .05$).

The SCQ produced two scales, sum of VC and NQSC relationships and closeness (Lang & Carstensen, 1994, 2002; Lang et al., 1998). The sum of VC and NQSC relationships was derived by summing the number of VC and NQSC relationships. The score had a potential range of 0 to 18 but ranged from 0 to 15 in this study. The sum of VC and NQSC relationships had a mean of 7.61 ($sd = 3.87$), median of 8.00 ($IQR = 7.00$), and normal distribution ($W(66) = .97, p > .05$). The closeness scale was derived by multiplying the number of VC people by 3, the number of NQSC people by 2, and calculating the grand mean. The potential range of the closeness scale was from 0 to 2.5 but ranged from 0 to 2.17 in this study. The closeness scale had a mean 1.08 ($sd = 0.57$), median of 1.06 ($IQR = 0.86$), and normal distribution ($W(66) = .97, p > .05$).

Emotional Social Support

Size of emotional social support system.

The Social Support Questionnaire 6 (SSQ6, Sarason et al., 1987) was used, in part, to assess the size of residents' emotional social support systems. Respondents were permitted to list up to nine people who provided emotional social support in items 5a, 6a, 7a, 8a, 9a, and 10a. The size of the respondents' emotional social support system was derived by calculating the mean of these items. A total of 4% of the data were missing, categorized as didn't know (3), not applicable (7), or refused (6). The latter set was associated with a respondent who refused to answer all items in the scale saying he did not want to discuss personal issues. Other residents said they either did not have the experience described in the item or dealt with it on their own. The mean of people who

provided emotional social support had a significant relationship ($r_{pb} = .58, p < .001$, one-tailed) with a likely covariate, sum of VC and NQSC relationships (Fung & Carstensen, 2004). A one-tailed independent t -test indicated that cases with ($M = 6.44, SE = 1.02$) and without ($M = 7.79, SE = 0.53$) missing values were not significantly different from one another in regard to sum of VC and NQSC relationships ($t(64) = 0.97, p > .05$).

Since the missing values appeared to be randomly distributed, they were replaced with the median of the individuals' items or the whole scale. Before the missing data were replaced, the scale mean was 1.78 ($sd = 1.53$) and median was 1.33 ($IQR = 1.43$). After the missing data were replaced, the mean was 1.75 ($sd = 1.52$) and median was 1.33 ($IQR = 1.50$). The distribution of this scale was normalized by a adding 1 and applying a log transformation ($W(66) = .96, p > .05$).

Satisfaction with emotional social support system.

The SSQ6 was also used to assess satisfaction with emotional social support. Responses to items 5b, 6b, 7b, 8b, 9b, and 10b were recorded using a 6-point Likert scale anchored by 1 (*very dissatisfied*) and 5 (*very satisfied*). The satisfaction with emotional social support scale was derived by calculating the mean of these items. A total of 5% of the data were missing, categorized as didn't know (6), not applicable (7), or refused (6). As before, the latter set was associated with a respondent who refused to answer all items in the scale saying he did not want to discuss personal issues. Satisfaction with emotional social support had a significant relationship with a likely covariate, weekly proportion of activities at which residents met people with whom they had NQSC relationships ($\tau = .29, p < .01$, one-tailed). Residents were more likely to attend groups with people they had NQSC relationships than VC or other relationships. A one-tailed Mann-Whitney test

indicated that cases with ($Mdn = 46\%$) and without ($Mdn = 59\%$) missing values were not significantly different from one another in regard to weekly participation in recreation groups ($U = 177.00, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median of the individuals' items or the whole scale. Before the missing data were replaced, the mean was 5.42 ($sd = 0.73$) and median was 5.67 ($IQR = 0.83$). After the missing data were replaced, the mean was 5.44 ($sd = 0.73$), median was 5.67 ($IQR = 0.83$), distribution was not normal ($D(66) = 0.22, p < .05$), and there was one outlier.

Satisfaction with Social Contacts in Recreation Groups

The social network subscale from the Leisure Satisfaction Scale (Beard & Ragheb, 1980) was used to assess residents' satisfaction with social contacts in group activities. Responses to items 11 through 20 were recorded using a 5-point Likert scale anchored by 1 (*almost never true*) and 5 (*almost always true*). A total of 4% of the data were missing, categorized as unavailable (4), don't know (1), unrecorded (1) or not applicable (21). The latter set was primarily associated with two people who said all of the items in the scale did not apply to them because they did not attend group activities. Attendance during the seven yesterday interviews contradicted the first resident's statement. The second resident, when pressed, said that she could not form an opinion about social contacts in groups as she avoided social interaction with other residents. Satisfaction with social contacts at groups_{+1 reverse lg10} had a significant relationship with a likely covariate, proportion of recreation groups attended_{lg10} ($r = -.46, p < .001$, one-tailed). A one-tailed independent t -test indicated that cases with ($M = 0.07, SE = 0.02$) and without ($M = 0.10, SE = 0.01$) missing values were not significantly different from

one another in regard to proportion of recreation groups attended_{lg10} ($t(64) = 1.17, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median of the individuals' items or the whole scale. Before the missing data were replaced, the scale mean was 3.73 ($sd = 0.89$) and median was 3.90 ($IQR = 1.23$). After the missing data were replaced, the mean was 3.74 ($sd = 0.89$) and median was 3.90 ($IQR = 1.15$). Reversing the scores and using a log transformation normalized the distribution ($W(66) = 0.98, p > .05$).

Recreation Interest

The items assessing recreation interest, numbers 21 through 37, were constructed from the literature (Buettner & Martin, 1995; Dunning, 2004; Mickus & Luz, 2002; Friedemann et al., 1997; Lanza, 1997, McGuire et al., 1999; Tilse, 1997; Wright, 2000). Responses to these items were recorded using a 5-point Likert scale anchored by 1 (*not interested*) and 5 (*extremely interested*). Since these items were not part of a scale, the missing data, measures of central tendency, and distribution of each was examined.

The item assessing interest in using a telephone to communicate with close family/friends was missing 2% of the data which were categorized as unavailable. The median response was used to replace this value. Before the missing value was replaced, the mean was 3.77 ($sd = 1.22$) and median was 4.00 ($IQR = 2.00$). After the missing value was replaced, the mean was 3.77 ($sd = 1.21$), median was 4.00 ($IQR = 2.00$), and distribution was not normal ($D(66) = 0.21, p < .05$).

The item assessing interest in using e-mail to communicate with close family/friends was missing 3% of the data which were categorized as unavailable (1) or don't know (1). The latter respondent said she had "never used a computer". E-mail had

a significant relationship ($\tau = -.29, p = .001$, one-tailed) with a likely covariate, age³ (Dunning, 2004; Mickus & Luz, 2002). A one-tailed independent *t*-test indicated that cases with ($M = 573678.50, SE = 230678.50$) and without ($M = 444375.95, SE = 25281.12$) missing values were not significantly different from one another in regard to age³ ($t(64) = -0.88, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 2.89 ($sd = 1.53$) and median was 3.00 ($IQR = 3.00$). After the missing data were replaced, the mean was 2.89 ($sd = 1.51$), median was 3.00 ($IQR = 3.00$), and distribution was not normal ($D(66) = 0.17, p < .05$).

The item assessing interest in using audio/visual (webcam) communication with close family/friends was missing 2% of the data which were categorized as unavailable. The median score was used to replace this value. Before the missing value was replaced, the mean was 3.29 ($sd = 1.40$) and median was 3.00 ($IQR = 2.00$). After the missing value was replaced, the mean was 3.29 ($sd = 1.39$), median was 3.00 ($IQR = 1.50$), and distribution was not normal ($D(66) = 0.18, p < .05$).

The item assessing interest in visiting in public spaces in the nursing home was missing 2% of the data which were categorized as unavailable. The median score was used to replace this value. Before the missing value was replaced, the mean was 3.46 ($sd = 1.37$) and median was 4.00 ($IQR = 2.00$). After the missing value was replaced, the mean was 3.47 ($sd = 1.36$), median was 4.00 ($IQR = 2.00$), and distribution was not normal ($D(66) = 0.20, p < .05$).

The item assessing interest in visiting in private spaces in the nursing home was missing 2% of the data which were categorized as unavailable. The median score was

used to replace this value. Before the missing value was replaced, the mean was 4.17 ($sd = 1.15$) and median was 5.00 ($IQR = 1.00$). After the missing value was replaced, the mean was 4.18 ($sd = 1.15$), median was 5.00 ($IQR = 1.00$), and distribution was not normal ($D(66) = 0.31, p < .05$).

The item assessing interest in visiting with pets was missing 6% of the data which were categorized as unavailable (1) or not applicable (3). The latter group said their family/friends did not have pets. Visiting with pets had a significant relationship with age³ ($\tau = -.13, p < .05$, one-tailed). A one-tailed independent t -test indicated that cases with ($M = 625237.00, SE = 83183.04$) and without ($M = 436878.55, SE = 25707.83$) missing values were not significantly different from one another in regard to age³ ($t(64) = -1.82, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 3.11 ($sd = 1.62$) and median was 4.00 ($IQR = 3.25$). After the missing data were replaced, the mean was 3.17 ($sd = 1.58$), median was 4.00 ($IQR = 3.00$), and distribution was not normal ($D(66) = 0.28, p < .05$).

The item assessing interest in having private parties with close family/friends at the nursing home was missing 5% of the data which were categorized as unavailable (1) or don't know (2). The latter group said that it depended upon family/friends' interest. Private parties had a significant relationship with a similar activity, meal in a private space ($\tau = .31, p < .01$, one-tailed). A one-tailed Mann-Whitney test indicated that cases with ($Mdn = 3.00$) and without ($Mdn = 4.00$) missing values were not significantly different from one another in regard to meal in a private space ($U = 41.00, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with

the median score. Before the missing data were replaced, the mean was 3.57 ($sd = 1.29$) and median was 4.00 ($IQR = 1.00$). After the missing data were replaced, the mean was 3.59 ($sd = 1.26$), median was 4.00 ($IQR = 1.00$), and distribution was not normal ($D(66) = 0.31, p < .05$).

The item assessing interest in having close family/friends join residents for a meal in the dining room was missing 6% of the data which were categorized as unavailable (1), unrecorded (1), or not applicable (2). The latter group either said that they did not want to eat in the dining room or used a feeding tube and these missing values were replaced with not interested since they were unlikely to participate in the activity in the future. Meal in the dining room had a significant relationship with a similar activity, meal in a private space ($\tau = .41, p < .001$, one-tailed). A one-tailed Mann-Whitney test indicated that cases with ($Mdn = 4.00$) and without ($Mdn = 4.00$) missing values were not significantly different from one another in regard to meal in a private space ($U = 27.00, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 2.95 ($sd = 1.44$) and median was 3.00 ($IQR = 3.00$). After the missing data were replaced, the mean was 2.89 ($sd = 1.44$), median was 3.00 ($IQR = 3.00$), and distribution was not normal ($D(66) = 0.18, p < .05$).

The item assessing interest in having close family/friends join residents for a private meal was missing 5% of the data which were classified as unavailable (1), not applicable (1), or unrecorded (1). The person who responded not applicable used a feeding tube and his response was replaced with not interested since he was unlikely to participate in the activity in the future. A one-tailed Mann-Whitney test indicated that

cases with ($Mdn = 1.00$) and without ($Mdn = 3.00$) missing values were not significantly different from one another in regard to meal in the dining room ($U = 8.00, p > .05$).

Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 3.43 ($sd = 1.44$) and median was 4.00 ($IQR = 3.00$). After the missing data were replaced, the mean was 3.41 ($sd = 1.45$), median was 4.00 ($IQR = 3.00$), and the distribution was not normal ($D(66) = 0.25, p < .05$).

The item assessing interest in having close family/friends join residents at recreation groups was missing 5% of the data which were classified as unavailable (1) or don't know (2). The latter group said that it depended upon family/friends' interests. Interest in recreation groups had a significant relationship with a likely covariate, satisfaction with social contacts at groups_{+1 reverse lg10} ($\tau = .35, p = .001$, one-tailed). A one-tailed independent t -test indicated that cases with ($M = 0.38, SE = 0.04$) and without ($M = 0.32, SE = 0.02$) missing values were not significantly different from one another in regard to satisfaction with social contacts at groups_{+1 reverse lg10} ($t(62) = -0.54, p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 3.02 ($sd = 1.43$) and median was 3.00 ($IQR = 3.00$). After the missing data were replaced, the mean was 3.02 ($sd = 1.40$), median was 3.00 ($IQR = 2.25$), and the distribution was not normal ($D(66) = 0.21, p < .05$).

Interest in having close family/friends join residents on public outings (where residents and family/friends socialize with other residents and staff) was missing 6% of the data which were categorized as unavailable (1) or not applicable (3). The latter group

said they either didn't want to or were physically unable to go on this type of outing but were able and interested in going on outings without nursing home staff. Given the incongruity, these missing values were replaced with not interested. The remaining missing value was replaced with the median value. Before the missing values were replaced, the mean was 3.32 ($sd = 1.45$) and median was 4.00 ($IQR = 2.25$). After the missing values were replaced, the mean was 3.36 ($sd = 1.41$), median was 4.00 ($IQR = 1.25$), and distribution was not normal ($D(66) = 0.22, p < .05$).

The item assessing interest in semi-private outings (where residents and family/friends socialize with one another while other residents and staff are nearby) was missing 6% of the data which were categorized as unavailable (1) or not applicable (3). As before, three missing values were categorized as not applicable but all of the residents indicated that they were able and interested in going on outings without nursing home staff. Given the incongruity, these missing values were replaced with not interested. The remaining missing value was replaced with the median value. Before the missing data were replaced, the mean was 3.63 ($sd = 1.42$) and median was 4.00 ($IQR = 2.00$). After the missing data were replaced, the mean was 3.65 ($sd = 1.38$), median was 4.00 ($IQR = 2.00$), and distribution was not normal ($D(66) = 0.25, p < .05$).

The item assessing interest in private outings (without nursing home staff) was missing 6% of the data which were categorized as unavailable (1), don't know (1), or not applicable (2). The latter group said they were physically unable to go on outings with family/friends and these values were replaced with not interested since they were unlikely to participate in the activity in the future. Interest in private outings had a significant relationship with a likely covariate, age³ ($\tau = -.30, p < .01$, one-tailed). Age related

limitations were likely to hinder outings without staff. A one-tailed independent t -test indicated that cases with ($M = 609511.50$, $SE = 97535.34$) and without ($M = 437893.10$, $SE = 25664.17$) missing values were not significantly different from one another in regard to age³ ($t(64) = -1.65$, $p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 4.05 ($sd = 1.37$) and median was 5.00 ($IQR = 1.25$). After the missing data were replaced, the mean was 4.11 ($sd = 1.35$) median was 5.00 ($IQR = 2.00$), and distribution was not normal ($D(66) = 0.34$, $p < .05$).

The item assessing interest in going on overnight outings with close family/friends' was missing 5% of the data which were categorized as not applicable (2) or unavailable (1). Interest in overnight outings had a significant relationship with a likely covariate, age³ ($\tau = -.24$, $p < .01$, one-tailed). Age related limitations were likely to hinder overnight outings. A one-tailed independent t -test indicated that cases with ($M = 593789.33$, $SE = 115743.78$) and without ($M = 441365.87$, $SE = 25645.44$) missing values were not significantly different from one another in regard to age³ ($t(64) = -1.27$, $p > .05$). Since the missing values appeared to be randomly distributed, they were replaced with the median score. Before the missing data were replaced, the mean was 2.59 ($sd = 1.73$) and median was 2.00 ($IQR = 3.00$). After the missing data were replaced, the mean was 2.56 ($sd = 1.69$), median was 2.00 ($IQR = 3.00$), and distribution was not normal ($D(66) = 0.29$, $p < .05$).

In addition to recreation interests, residents were asked if they would like information or assistance from recreation staff to facilitate communication or visits with family/friends. These items appeared to confuse most residents; they had to be prompted

two or three times before answering and responses were tentative. Consequently, the results should be interpreted with caution and were not included in subsequent analyses. The item assessing interest in information or assistance from recreation staff to facilitate communication was missing 11% of the data which were classified as don't know (6) or unavailable (1). The mean was 1.41 ($sd = 0.98$), median was 1.00 ($IQR = 0.00$), and distribution was not normal ($D(59) = 0.47, p < .05$). The item assessing interest in information or assistance from recreation staff to facilitate communication was missing 14% of the data which were classified as don't know (6), unavailable (1), or not applicable (2). The mean was 1.49 ($sd = 1.09$), median was 1.00 ($IQR = 0.00$), and distribution was not normal ($D(57) = 0.46, p < .05$).

Demographics

The majority of the items assessing demographic traits (gender, race, marital status, daughters, sons, age, education, and limited time left) did not have missing data. Approximately two thirds of the respondents were female (65%) and one third male (35%). Nearly all of the respondents were white (97%) but two were Asian (3%). Approximately one half were widowed (46%), one quarter were divorced (23%), and the remainder had never married (15%), were still married (15%), or were partnered (2%). Since partnered only included one case, it and married were aggregated into a single category; spouse. Number of daughters had a mean of 1.06 ($sd = 1.21$), median of 1.00 ($IQR = 2.00$), and the distribution was not normal ($D(66) = .25, p < .05$). Number of sons had a mean of 1.05 ($sd = 1.06$), median of 1.00 ($IQR = 2.00$), and the distribution was not normal ($D(66) = .25, p < .001$). Numbers of daughters and sons were aggregated into a single category, children. Number of children had a mean of 2.11 ($sd = 1.92$), median of

2.00 ($IQR = 3.00$), and the distribution was not normal ($D(66) = .18, p < .001$). Resident age had a mean of 74.21 ($sd = 13.85$) and median of 76.00 ($IQR = 15.75$). While the distribution of age was normal ($D(66) = .04, p > .05$), raising it to the third power enhanced the normality ($W(66) = .99, p > .05$). Resident age³ had a mean of 448,294.21 ($sd = 2.04$) and median of 438,976.00 ($IQR = 271356.75$). Years of education completed had a mean of 12.26 ($sd = 2.82$), median of 12.00 ($IQR = 2.25$), and the distribution was not normal ($D(66) = .26, p < .05$). Perceived time left had a mean of 3.00 ($sd = 1.46$), median of 3.00 ($IQR = 2.00$), and the distribution was not normal $D(66) = .15, p < .01$.

Nursing home tenure had 2% of the data. One respondent couldn't recall how long she had lived in the nursing home. The missing variable was replaced using the median score. Before the missing value was replaced, the item had a mean of 3.46 ($sd = 3.30$), median of 2.50 ($IQR = 4$). After the missing value was replaced, the item had a mean of 3.46 ($sd = 3.27$) and median of 2.63 ($IQR = 4.00$). The distribution was normalized by using a log transformation ($W(66) = .97, p > .05$).

The importance of living near close family/friends was missing 2% of the data. One resident responded didn't know. She was placed in the nursing home by her family while unable to make her own decisions. The missing variable was replaced using the median score. Before the missing value was replaced, the item had a mean of 3.88 ($sd = 1.39$) and median of 4.00 ($IQR = 2.00$). After the missing value was replaced, the item had a mean of 3.88 ($sd = 1.38$), median of 4.00 ($IQR = 2.00$), and the distribution was not normal ($D(66) = .25, p < .05$).

Most residents (85%) indicated that they received Medicare, however, 5% (three respondents) didn't know. This item was not intended to be used in the analysis, given

that the study involved residents who had resided in the nursing home for three or more months all of them were very likely to receive Medicare, but it was used as a precursor to a sensitive question; Medicaid use. The missing data were not replaced.

Most residents (53%) indicated that they received Medicaid, however, 12% (eight respondents) didn't know. In two cases, a family member indicated that the resident received Medicaid and the missing values were replaced accordingly. On average, people who enter nursing homes spend down their assets and become eligible for Medicaid within one year (Adams, Meiners, & Burwell, 1992). Of the remaining cases, five had resided in the nursing home between three and seven years and were classified as receiving Medicaid while one had resided in the nursing home for five months and was not. After the missing data were replaced, 64% of the sample received Medicaid.

Yesterday Interviews

Yesterday Interviews (Moss & Lawton, 1982) were used to assess how many group activities residents attended in a week and the quality of social contacts at those activities. A total of 8% of yesterday interviews were missing. Of the 66 respondents in the study, 17 missed one to six interviews. Reasons for missed interviews included residents being tired or asleep (4), being quarantined (1), being upset (1), having visitors (1), and being out of the facility (14). Three residents stated that they did not want to complete the remaining interviews (4, 5, and 6 interviews respectively).

Since the number of activities offered at each facility varied, the proportion of groups attended was calculated. A desirable strategy for replacing missing values in longitudinal data in which change is not expected is to use the last observed value within each case (Tabachnick & Fidell, 2001). To determine the consistency of the data, the

difference among the proportion of recreation groups attended on each of the seven days was examined using a Friedman's ANOVA. In addition to the non-normality of the data, the independent observations assumption of repeated measures ANOVA was violated making parametric statistics inappropriate for the data (Field, 2005). It indicated that the proportion of recreation groups attended on each of the seven days were not significantly different from one another ($\chi^2(6) = 1.87, p > .05$). The missing values were replaced using the respondents' previous observed proportion. The mean of the seven daily proportions was then calculated to obtain a weekly proportion. Before the missing values were replaced, the proportion of groups attended each week had a mean of 28% ($sd = 22\%$) and median of 29% ($IQR = 34\%$). After the missing values were replaced, the proportion of groups attended each week had a mean of 28% ($sd = 22\%$), median of 29% ($IQR = 34\%$), and the distribution was normalized by adding 1 to the score and applying a log transformation ($D(66) = .11, p > .05$).

Since the preceding variables were associated with ones which assessed how often respondents attended activities with VC family/friends (suffix b), attended activities with NQSC family/friends (suffix c), and planned to meet VC or NQSC family/friends at activities (suffix d), they had identical patterns of missing data. A similar strategy was used to replace these values.

Of the residents who went to activities ($n = 56$), the proportion of activities at which they met VC family/friends did not change significantly during the week ($\chi^2(6) = 2.22, p > .05$). Missing proportions were replaced using the proportion from the preceding day. The mean of the seven daily proportions at which residents met VC family/friends was calculated to obtain a weekly proportion. Before the missing values

were replaced, the weekly proportion of activities at which residents met VC family/friends had a mean of 25% ($sd = 31\%$) and median of 13% ($IQR = 41\%$). After the missing values were replaced, the weekly proportion of activities at which residents met VC family/friends had a mean of 25% ($sd = 31\%$), median of 11% ($IQR = 39\%$), and the distribution was not normal ($D(56) = 0.22, p < .05$).

Of the residents who went to activities, the proportion of activities at which they met NQSC family/friends did not change significantly during the week ($\chi^2(6) = 4.93, p > .05$). Missing proportions were replaced using the proportion from the preceding day. The mean of the seven daily proportions at which residents met NQSC family/friends was calculated to obtain a weekly proportion. Before the missing values were replaced, the weekly proportion of activities at which residents met NQSC family/friends had a mean of 57% ($sd = 37\%$) and median of 58% ($IQR = 73\%$). After the missing values were replaced, the weekly proportion of activities at which residents met NQSC family/friends at activities had a mean of 56% ($sd = 38\%$), median of 58% ($IQR = 80\%$), and the distribution was not normal ($D(56) = 0.14, p < .05$).

Of residents who met VC or NQSC family/friends at activities ($n = 49$), the proportion of those who indicated that they planned to do so did not change significantly during the week ($\chi^2(6) = 1.18, p > .05$). Missing proportions were replaced using the proportion from the preceding day. The mean of the seven daily proportions at which residents planned to meet VC or NQSC family/friends was calculated to obtain a weekly proportion. Before and after the missing values were replaced, the weekly proportion of activities at which residents planned to meet VC or NQSC family/friends had a mean of 30% ($sd = 37\%$), median of 14% ($IQR = 63\%$), and the distribution was not normal

$(D(49) = 0.26, p < .05)$.

Family/Friend Survey

Knowledge of Nursing Home Policies and Procedures

The items assessing the influence of nursing home policies and procedures on the contact between residents and family/friends were modeled on an assessment developed by Friedemann (personal communication, May 14, 2005) and supplemented with items constructed from the literature (Buettner & Martin, 1995; Friedemann, Montgomery, Maiberger, & Smith, 1997; Lanza, 1997, McGuire et al., 1999; Tilse, 1997; & Wright, 2000). Responses ($n = 27$) were recorded using a Likert scale anchored by 1 (*never*) and 5 (*all the time*). Since Friedemann's analysis indicated that the items did not form a scale, the missing data, measures of central tendency, and distribution of each was examined.

Several items did not have missing values. Permission to visit with residents when desired had a mean of 4.81 ($sd = 0.48$), median of 5.00 ($IQR = 0.00$), distribution that was not normal ($D(27) = .52, p < .05$), and one outlier. After the variable was recoded, 66% responded all the time and 33% not all the time. Permission to visit with residents in privacy had a mean of 4.41 ($sd = 1.01$), median of 5.00 ($IQR = 1.00$), distribution that was not normal ($D(27) = .52, p < .05$), and one outlier. After the variable was recoded, 66% responded all the time and 33% not all the time. Permission to take residents on outings without nursing home staff had a mean of 4.89 ($sd = 0.42$), median of 5.00 ($IQR = 0.00$), distribution that was not normal ($D(27) = .53, p < .05$), and one outlier. After the variable was recoded, 93% responded all the time and 7% not all the time.

Several items were missing more than 15% of the data and it was not replaced (Tabachnick & Fidell, 2001). Permission to bring pets to visit residents was missing 48% of the data which were categorized as not applicable (7) or don't know (6). It had a mean of 4.50 ($sd = 1.16$), median of 5.00 ($IQR = 0.25$), and distribution that was not normal ($D(14) = .45, p < .001$). After the variable was recoded, 41% responded all the time and 11% not all the time. Permission to have meals in the dining room was missing 22% of the data which were categorized as not applicable (1) or don't know (5). It had a mean of 4.86 ($sd = 0.48$), median of 5.00 ($IQR = 0.00$), distribution that was not normal ($D(21) = .52, p < .001$), and one outlier. After the variable was recoded, 70% responded all the time and 7% not all the time. Permission to have a meal with residents in privacy was missing 15% of the data which were categorized as don't know (4). It had a mean of 4.39 ($sd = 1.23$), median of 5.00 ($IQR = 1.00$), and distribution that was not normal ($D(27) = .53, p < .001$). After the variable was recoded, 63% responded all the time and 22% not all the time. Permission to attend recreation groups was missing 26% of the data which were categorized as don't know (7). It had a mean of 4.80 ($sd = 0.89$), median of 5.00 ($IQR = 0.00$), distribution that was not normal ($D(20) = .54, p < .001$), and one outlier. After the variable was recoded, 70% responded all the time and 4% not all the time. Permission to attend recreation outings was missing 59% of the data which were categorized as not applicable (3) or don't know (13). Some people who responded don't know had not thought to ask to go on outings or were uncertain that outings occurred. The variable had a mean of 4.27 ($sd = 1.61$), median of 5.00 ($IQR = 0.00$), and distribution that was not normal ($D(11) = .49, p < .05$). After the variable was recoded, 33% responded all the time and 7% not all the time. Permission to take residents on

outings overnight was missing 41% of the data which were categorized as not applicable (1) or don't know (10). The variable had a mean of 3.75 ($sd = 1.91$), median of 5.00 ($IQR = 4.00$), and distribution that was not normal ($D(16) = .43, p < .001$). After the variable was recoded, 41% responded all the time and 19% not all the time.

The missing data in the remaining items pertaining to permission were replaced by applying the mode. Permission to telephone residents when desired was missing 4% of the data (one value) which were categorized as not applicable. The family member lived near the nursing home and visited instead of telephoning. After the missing value was replaced, the variable had a mean of 4.85 ($sd = 0.46$), median of 5.00 ($IQR = 0.00$), a distribution that was not normal ($D(27) = .52, p < .001$), and one outlier. After the variable was recoded, 89% responded all the time and 11% not all the time. Permission to have private parties was missing 7% of the data (two values) which were categorized as don't know. After the missing values were replaced, the variable had a mean of 4.74 ($sd = 0.85$), median of 4.74 ($IQR = 0.00$), a distribution that was not normal ($D(27) = .51, p < .001$), and one outlier. After the variable was recoded, 89% responded all the time and 11% not all the time. Receiving a recreation calendar was missing 4% of the data (one value) which were categorized as not applicable. The family/friend lived 3000 miles from the nursing home. After the missing value was replaced, the variable had a mean of 1.44 ($sd = 1.12$), median of 1.00 ($IQR = 0.00$), and a distribution that was not normal ($D(27) = .47, p < .001$). After the variable was recoded, 7% responded all the time and 93% not all the time.

Ability to Interact With Residents

The ability of family/friends to interact with residents was assessed using four

dichotomous items. The vast majority of family/friends were able to access and use a telephone (96%), access and use the internet (70%), and could get to the nursing home (82%) most of the time. Capable of taking residents on outings most of the time had one missing value which was categorized as don't know. The family member said that the resident's health hindered his ability to take the resident on outings. Since 74% of the family/friends indicated that they were able to take residents on outings, the missing value was replaced with the mode. After the missing value was replaced, 78% of the family/friends indicated that they were able to take residents on outings most of the time.

Recreation Interest

Family/friends' interest in participating in recreation activities was assessed using items constructed from the literature (Buettner & Martin, 1995; Friedemann, Montgomery, Maiberger, & Smith, 1997; Lanza, 1997, McGuire et al., 1999; Tilse, 1997; Wright, 2000). Responses were recorded using a Likert scale anchored by 1 (*not interested*) and 5 (*extremely interested*).

A number of items did not have missing data. Interest in talking on the telephone had a mean of 3.78 ($sd = 1.37$), median of 4.00 ($IQR = 2.00$), and distribution that was not normal ($D(27) = .26, p < .05$). Interest in communicating by e-mail had a mean of 2.52 ($sd = 1.72$), median of 1.00 ($IQR = 3.00$), and distribution that was not normal ($D(27) = .33, p < .05$). Interest in communicating by webcam had a mean of 2.70 ($sd = 1.71$), median of 3.00 ($IQR = 4.00$), and distribution that was not normal ($D(27) = .29, p < .05$). Interest in visiting in private spaces at the nursing home had a mean of 4.37 ($sd = 0.74$), median of 5.00 ($IQR = 1.00$), and distribution that was not normal ($D(27) = .32, p < .05$). Interest in visiting in public spaces at the nursing home had a mean of 2.85 ($sd =$

1.35), median of 3.00 ($IQR = 3.00$), and distribution that was not normal ($D(27) = .25, p < .05$). Interest in having parties that included other residents had a mean of 2.85 ($sd = 1.49$), median of 3.00 ($IQR = 3.00$), and distribution that was normal ($D(27) = .16, p > .05$). Interest in having private parties at the nursing home had a mean of 4.11 ($sd = 1.15$), median of 4.00 ($IQR = 1.00$), and distribution that was not normal ($D(27) = .31, p < .05$). Interest in having a meal in a private space had a mean of 3.59 ($sd = 1.39$), median of 4.00 ($IQR = 2.00$), and distribution that was not normal ($D(27) = .21, p < .05$). Interest in attending recreation groups with the resident had a mean of 2.78 ($sd = 1.40$), median of 3.00 ($IQR = 3.00$), and distribution that was not normal ($D(27) = .20, p < .05$). Interest in going on outings without nursing home staff had a mean of 3.63 ($sd = 1.42$), median of 4.00 ($IQR = 2.00$), and distribution that was not normal ($D(27) = .20, p < .5$).

Several variables had missing values which were not replaced. Interest in bringing a pet to visit was missing 33% of the data which was categorized as not applicable (9). Since the proportion of missing values exceeded 15%, they were not replaced (Tabachnick & Fidell, 2001). The variable had a mean of 2.72 ($sd = 1.84$), median of 2.00 ($IQR = 4.00$), and distribution that was not normal ($D(18) = .33, p < .05$). Interest in public outings, where family/friends and residents socialize with other residents and staff, was missing 9% of the data which was categorized as not applicable (3). The missing responses did not appear to be randomly distributed and were not replaced. They were associated with a nursing home that did not have a van for resident outings. The mean was 2.46 ($sd = 1.47$), median was 2.50 ($IQR = 2.75$), and distribution was not normal ($D(24) = .26, p < .05$). Interest in going on semi-private outings, where family/friends and residents socialize privately but other residents and staff are near by,

was missing 9% of the data which was categorized as not applicable (3). As before, the missing responses did not appear to be randomly distributed and were not replaced. The mean was 3.08 ($sd = 1.56$), median was 3.50 ($IQR = 3.00$), and distribution was not normal ($D(24) = .22, p < .05$).

The remaining items had missing values which were replaced. Interest in having a meal in the dining room was missing 4% of the data which was categorized as unrecorded (1). The missing value was replaced with the median value. Before it was replaced, the mean was 2.58 ($sd = 1.42$) and median was 2.58 ($IQR = 3.00$). After the missing value was replaced, the mean was 2.59 ($sd = 1.39$), median was 3.00 ($IQR = 3.00$), and distribution was not normal ($D(27) = .25, p < .001$). Interest in receiving a recreation calendar was missing 4% of the data which was categorized as not applicable (1). The family member stated that he looked at the one in the resident's room each day so the missing value was replaced with extremely interested. Before it was replaced, the mean was 2.85 ($sd = 1.74$) and median was 3.50 ($IQR = 3.25$). After the missing value was replaced, the mean was 2.93 ($sd = 1.75$), median was 4.00 ($IQR = 4.00$), and distribution was not normal ($D(27) = .27, p < .05$). Interest in taking residents on overnight outings was missing 4% of the data which was categorized as don't know (1). The missing value was replaced with the median response. Before it was replaced, the mean was 1.81 ($sd = 1.50$) and median was 1.00 ($IQR = 1.25$). After the missing value was replaced, the mean was 1.78 ($sd = 1.48$), median was 1.00 ($IQR = 1.00$), and distribution was not normal ($D(27) = .44, p < .05$).

Three items were used to assess interest in receiving information or assistance to improve the quality of relationships between family/friends and residents. Interest in

receiving a recreation calendar had one missing value categorized as not applicable which was replaced with the median value. Before it was replaced, the mean was 2.85 ($sd = 1.74$) and median was 3.50 ($IQR = 3.25$). After the missing value was replaced, the mean was 2.93 ($sd = 1.75$), median was 4.00 ($IQR = 4.00$), and distribution was not normal ($D(27) = .27, p < .05$). As it was with the residents, questions assessing family/friends' interest in receiving information or assistance to improve the quality of communication and visits with residents appeared to be poorly understood. Most family/friends had to be prompted two or three times. However, family/friends who were distanced from their loved one responded easily to the questions. There were no missing values. Interest in information or assistance to improve contact had a mean of 1.89 ($sd = 1.50$), median of 1.00 ($IQR = 2.00$), and the distribution was not normal ($D(27) = .43, p < .05$). Interest in information or assistance to improve visits had a mean of 1.78 ($sd = 1.40$), median of 1.00 ($IQR = 1.00$), and the distribution was not normal ($D(27) = .42, p < .05$).

Demographics

All of the demographic variables were complete. Approximately three quarters (78%) of the close family/friends were female. All of the family/friends (100%) were white. The mean age was 59.07 ($sd = 14.41$) and the distribution was normal ($W(27) = .96, p > .05$). Approximately one half of the respondents attended or graduated from college (52%). The years of education completed had a mean of 14.78 ($sd = 3.08$), median of 16.00 ($IQR = 4.00$), and a distribution that was not normal ($D(27) = .20, p < .05$). The number of dependents had a mean of 0.37 ($sd = 0.88$), median of 0.00 ($IQR = 0.00$), and a distribution that was not normal ($D(27) = .48, p < .05$). Approximately one half of the family/friends worked some or all of the time (56%). A Likert scale anchored

by 1 (*not at all*) and 5 (*extremely*) was used to assess the degree to which family/friends' physical health limited their interaction with residents. The mean was 1.63 ($sd = 1.08$), median was 1.00 ($IQR = 1.00$), and the distribution was not normal ($D(27) = .38, p < .05$). The mileage family/friends lived from the nursing home had a mean of 270.56 ($sd = 797.86$), median of 5.50 ($IQR = 13.00$), a distribution that was not normal ($D(27) = .38, p < .001$), and two outliers. A Likert scale anchored by 1 (*extremely difficult*) and 5 (*very easy*) was used to assess the ease with which family/friends could transport themselves to the nursing home. The mean was 4.26 ($sd = 1.26$), median was 5.00 ($IQR = 2.00$), and the distribution was not normal ($D(27) = .43, p < .05$).

Family/friend responses to resident tenure and Medicaid use were used to replace missing values in residents' data. Since the original variables were not used in the analyses, the missing data was not replaced. All of the family/friends ($n = 27$) responded to resident tenure and indicated that it had a mean of 2.90 ($sd = 2.74$), a median of 2.00 ($IQR = 3.25$), and a distribution that was not normal ($D(27) = .23, p < .05$). As before, Medicare use was used as a precursor to a sensitive question, Medicaid use, and was not used in the analyses. All of the family/friends ($n = 27$) responded to residents' receiving Medicare and indicated that 100% did so. Nearly all of the family/friends ($n = 25$) responded to residents' receiving Medicaid and indicated that 77% did so.

Analysis

Research Question 1

1.1 How Many Close and Important People Are in Residents' Social Networks?

VC relationships had a mean of 4.21 ($sd = 3.00$), median of 4.00 ($IQR = 6.00$), and distribution that was normalized by applying a square root transformation ($D(66) =$

.11, $p > .05$). NQSC relationships had a mean of 3.39 ($sd = 2.60$), median of 3.00 ($IQR = 3.25$), and distribution that was not normal ($D(66) = .13, p < .05$). A two-tailed Wilcoxon signed-rank test indicated that the sum of VC and the sum of NQSC relationships was not significantly different from one another ($z = -1.51, p > .05$).

1.2 Who Do Residents Identify As Close and Important People?

The following categories were used to describe the relationships: (a) spouses (husbands/wives and partners) = 1, (b) children (birth and adopted) = 2, (c) other kin (grandparents, in-laws, step relations, cousins, nephews/nieces, grandchildren, great grandchildren, and great great grandchildren) = 3, (d) friends (extra-familial relationships and romantic relationships not identified as partners) = 4, (e) staff = 5, (f) parents = 6, and (g) siblings (birth and adopted) = 7. The proportion of residents who had one or more VC relationship in each type was as follows: spouse (12%), parents (6%), children (67%), siblings (27%), other kin (42%), friends (32%), and staff (8%). The proportion of residents who had one or more NQSC relationship in each type was as follows: parents (3%), children (5%), siblings (18%), other kin (36%), friends (45%), and staff (24%).

Lang and Carstensen (2002) typed relationships using four categories: (a) spouse, (b) children, (c) other kin, and (d) non-kin. The data were reanalyzed using these categories. Residents had one or more VC relationships with spouses (12%), children (67%), other kin (64%), and non-kin (35%). The sum of VC relationships with spouses had a mean of 0.12 ($sd = 0.33$), median of 0.00 ($IQR = 0.00$), and distribution that was not normal ($D(66) = .52, p < .05$). The sum of VC relationships with children had a mean of 1.47 ($sd = 1.62$), median of 1.00 ($IQR = 3.00$), and distribution that was not normal ($D(66) = .22, p < .05$). The sum of VC relationships with other kin had a mean of

1.83 ($sd = 2.06$), median of 1.00 ($IQR = 3.00$), and distribution that was not normal ($D(66) = .20, p < .05$). The sum of VC relationships with non-kin had a mean of 0.79 ($sd = 1.46$), median of 0.00 ($IQR = 1.00$), and distribution that was not normal ($D(66) = .36, p < .05$).

To compare the sum of VC relationships with children, non-kin, and other kin a Friedman ANOVA was used. In addition to the non-normality of the data, the underlying populations were unlikely to be normally distributed so parametric statistics were not appropriate (Field, 2005). It indicated that there was a significant difference among the three types of relationships ($\chi^2(2) = 16.68, p < .001$). Wilcoxon signed-rank tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analysis. They indicated that the sum of VC relationships with children and non-kin ($z = -2.63, p < .0167, r = -.32$) as well as other kin and non-kin ($z = -3.12, p < .0167, r = -.38$) were significantly different from one another. However, the sum of VC relationships with children and other kin were not ($z = -0.92, p > .05$). Residents appeared to have a similar number of VC relationships with children and other kin but had far fewer relationships with non-kin.

A similar set of analyses were applied to NQSC relationships. Residents did not report NQSC relationships with spouses but had one or more with children (5%), other kin (45%), and non-kin (58%). The sum of NQSC relationships with children had a mean of 0.08 ($sd = 0.36$), median of 0.00 ($IQR = 0.00$), and distribution that was not normal ($D(66) = .54, p < .05$). The sum of NQSC relationships with other kin had a mean of 1.53 ($sd = 2.25$), median of 0.00 ($IQR = 3.00$), and distribution that was not normal ($D(66) = .30, p < .05$). The sum of NQSC relationships with non kin had a mean of 1.79 ($sd = 2.22$), median of 1.00 ($IQR = 3.00$), and distribution that was not normal

$(D(66) = .21, p < .05)$.

To compare the sum of NQSC relationships with children, non-kin, and other kin a Friedman ANOVA was used. In addition to the non-normality of the data, the underlying populations were unlikely to be normally distributed so parametric statistics were not appropriate (Field, 2005). It indicated that there was a significant difference among the three types of relationships ($\chi^2(2) = 37.51, p < .001$). Wilcoxon tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analysis. They indicated that the sum of NQSC relationships with children and other-kin ($z = -4.58, p < .001, r = -0.56$) as well as children and non-kin ($z = -5.42, p < .001, r = -.67$) were significantly different from one another. However, the sum of NQSC relationships with other kin and non-kin were not ($z = -0.72, p > .05$). Residents appeared to have a similar number of NQSC relationships with other kin and non-kin but had far fewer with children.

To explore this issue further, the sum of VC with children, other kin, and non-kin and NQSC relationships with children, other kin, and non-kin were compared using Wilcoxon signed-rank tests. The sum of VC and NQSC children ($z = -5.23, p < .001, r = -.64$) were significantly different from one another. The sum of VC and NQSC other kin were not significantly different ($z = -1.02, p > .05$). Lastly, the sum of VC and NQSC non-kin were significantly different ($z = -2.89, p < .01, r = -0.36$). Residents primarily described their relationships with children as VC and non kin as NQSC. The sum of VC and NQSC relationships with other kin were similar.

In a few cases, relationships with nuclear family members were not described as VC or NQSC. Two residents were married but did not identify their relationship with their spouse as VC or NQSC. Given that 32% of the residents did not have children and

41% described their relationship with all of their children as VC or NQSC, the remaining 27% of residents had one or more relationships with children that were not described as VC or NQSC.

1.3 How Long Are Residents' Relationships With Close and Important People?

Socioemotional selectivity theory suggests that the duration of VC relationships tends to be longer than NQSC relationships (Lang & Carstensen, 1994, 2002; Lang et al., 1998). The data in this study support this prediction. A one-tailed Wilcoxon signed-rank test suggested that VC relationships ($Mdn = 43.42$) were significantly longer than NQSC relationships ($Mdn = 30.50, z = -2.91, p < .01, r = -.27$).

1.4 What Is the Proximity between Residents and Close and Important?

While proximity was measured using three responses (lives outside nursing home = 1, lives or works inside nursing home = 2, roommate = 3), only three residents reported VC or NQSC relationships with roommates. The latter two groups were aggregated into a single category (lives or works inside nursing home = 2). Most of the residents were distanced from people with whom they had VC relationships. Only 15% reported VC relationships with one or more people who worked or lived at the nursing home. Of these, four residents reported relationships with one or more staff members, two residents identified relationships with family members who worked at their nursing homes, and five residents reported relationships with other residents.

Similarly, most residents were distanced from people with whom they had NQSC relationships. Only 30% of residents had NQSC relationships with one or more people who worked or lived at the nursing home. Of these, 15 residents reported NQSC

relationships with one or more staff members and 11 residents identified one or more relationships with other residents.

To explore this question further, the sum of VC and the sum of NQSC relationships in the nursing home were compared. The sum of VC relationships with people living or working in the nursing home had a mean of 0.27 ($sd = 0.81$), median of 0.00 ($IQR = 0.00$), and distribution that was not normal ($D(66) = .48, p < .05$). The sum of NQSC relationships with people living or working in the nursing home had a mean of 0.73 ($sd = 1.33$), median of 0.00 ($IQR = 1.00$), and distribution that was not normal ($D(66) = .41, p < .05$). A one-tailed Wilcoxon signed-rank test suggested that there was a significant difference between them. Residents had fewer VC than NQSC relationships in the nursing home ($z = -2.41, p < .01, r = -.30$).

Research Question 2

To determine if close social contacts provide emotional social support, the individuals identified in the Social Convoys Questionnaire (SCQ) and Social Support Questionnaire 6 (SSQ6) were compared. Each person identified in the SSQ6 was compared to the SCQ and the sum of people with whom residents had VC, NQSC, and other relationships was calculated. The mean of each relationship type in the six items was then calculated. VC relationships that provided emotional social support had a mean of 1.33 ($sd = 1.48$), median of 1.00 ($IQR = 1.25$), and distribution that was not normal ($D(66) = .20, p < .05$). NQSC relationships that provided emotional social support had a mean of 0.31 ($sd = 0.48$), median of 0.00 ($IQR = 0.50$), and distribution that was not normal ($D(66) = .29, p < .05$). Other relationships that provided emotional social support

had a mean of 0.10 ($sd = 0.18$), median of 0.00 ($IQR = 0.17$), and distribution that was not normal ($D(66) = .38, p < .05$).

To compare the sum of VC, NQSC, and other relationships that provided emotional social support a Friedman ANOVA was used. In addition to the non-normality of the data, the underlying populations were unlikely to be normally distributed so parametric statistics were not appropriate (Field, 2005). It indicated that there was a significant difference among the three types of relationships ($\chi^2(2) = 56.69, p < .001$). Wilcoxon tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analysis. They indicated that the number of VC and NQSC relationships ($z = -5.25, p < .001, r = -.65$), VC and other relationships ($z = -6.49, p < .001, r = -.80$), and NQSC and other relationships ($z = -3.52, p < .001, r = -.43$) were significantly different from one another. The vast majority of relationships that provided emotional social support were described as VC. NQSC and other relationships were a distant second and third, respectively. There was one outlier in each of the variables assessing NQSC and other relationships that provided emotional social support. The two cases with outliers were removed and the analysis rerun. The results mirrored the preceding findings.

Bivariate correlations and a multiple regression were used to identify which residents had larger emotional social support systems. It was hypothesized that emotional social support system size would be largest among people who had more closeness (SCQ grand mean) and longer mean relationship length (Lang & Carstensen, 1994, 2002; Lang et al., 1998). Emotional social support system size had a significant relationship with closeness ($r = .61, p < .001$) but not relationship length ($r = -.11, p > .05$). As expected, relationship length was not a significant predictor in the regression

and removed from the analysis. Closeness was a highly significant predictor ($B = 0.21$, $SE = 0.03$, $\beta = 0.61$, $p < .001$) and explained 37% of the variance in emotional social support system size. However, the results were not generalizable beyond the sample. The assumption of heteroscedasticity was violated and could not be corrected. To substantiate these findings, the analyses were repeated on the data set which included missing values. A listwise procedure was used to remove the case with missing values ($n = 65$). The results mirrored the preceding findings.

Research Question 3

3.1 How Often Do Residents Attend Recreation Groups?

As previously discussed, the proportion of recreation groups attended is the preferred way to document attendance since the number of groups offered at each facility varied. A maximum of 29 groups were offered during the week and a maximum of 14 were attended. Subjects in this study attended a median of 29% (IQR = 34%) of groups offered. The results are in contrast to one study which suggested that, residents who were cognitively intact or borderline scored in the “low to moderate” range on a standardized variable of participation in recreation groups (Voelkl, Fries, & Galecki, 1995, p. 49)

3.2 Do Residents Interact With Close and Important People at the Groups?

A primary or secondary rationale for providing recreation services to groups of people is that high rates of interaction are thought to facilitate the development of meaningful friendships among residents. To begin to examine this issue, VC and NQSC friendships among residents, proximity, relationship length, and tenure were examined. Having selected residents who had friendships with other residents in the nursing home,

the length of the relationship and tenure were compared. If the length of the friendship was shorter than tenure, the relationship was likely to have resulted from social interaction at the nursing home. The results suggest that residents rarely had VC relationships with other residents. Only seven people identified VC relationships with other residents. Of these, two residents each had one friendship that predated admission, four residents each had one friendship that postdated admission, and one resident had two friendships that postdated admission. Only 8% of residents developed one or more VC friendships with other residents after admission. The development of these few friendships may or may not have been associated with participation in recreation groups. They may have developed during informal interaction. For example, one resident developed a VC relationship with her roommate. Similarly, the results suggest that residents rarely had NQSC relationships with other residents. Only 10 residents reported one or more NQSC relationships with other residents. Of these, 1 relationship was between siblings and 1 friendship pre-dated admission. The remaining residents (12%) developed relationships after admission with 6 residents each having one friendship and 2 residents each having two. Again, the development of these friendships may or may not be associated with participation in recreation groups. One respondent developed a NQSC relationship with her roommate. Further evidence from the yesterday interviews suggests that recreation groups were not an important vehicle for interaction with close or important family/friends. Residents only attended a median of 14% of groups at which they planned to meet people with whom they had VC or NQSC relationships.

One explanation for the infrequency of VC and NQSC relationships among residents may be the short period of time they have to develop relationships. Differences

in the length of tenure₁₁ and VC relationships, as well as tenure₁₁ and NQSC relationships, were examined using a paired *t*-test and Wilcoxon signed-rank test respectively. The length of tenure₁₁ ($M = 0.35$, $SE = 0.06$) and VC relationships ($M = 41.96$, $SE = 2.18$) were significantly different from one another ($t(59) = -19.12$, $p < .001$, $r = -.93$). The length of tenure₁₁ and NQSC relationships ($z = -6.31$, $p < .001$, $r = -.87$) were also significantly different from one another. However, satisfaction with social contacts in groups and social network size or closeness may also be important factors. While regressing these variables on the proportion of VC and NQSC relationships in the nursing home may clarify their influence, there were so few people who had them that the analysis was not possible.

To explore this question further, the proportion of recreation groups at which residents interacted with people with whom they had VC, NQSC, and other relationships was examined. In addition to the non-normality of the data, the underlying populations were unlikely to be normally distributed so parametric statistics were not appropriate (Field, 2005). A Friedman's ANOVA indicated that there was a significant difference among the groups ($\chi^2(2) = 18.91$, $p < .001$). Wilcoxon tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analysis. They indicated that the proportion of groups at which VC ($Mdn = .11$) and NQSC ($Mdn = .58$) relationships were present ($z = -4.36$, $p < .001$, $r = -.58$) as well as the mean proportion of groups at which NQSC and other ($Mdn = .14$) relationships were present ($z = -4.46$, $p < .001$, $r = -.60$) were significantly different from one another. However, the mean proportion of groups at which VC and other relationships were present ($z = -1.11$, $p > .0167$) were not significantly different from one another. At groups, residents were most likely to interact

with people with whom they had NQSC relationships. Contact with people with whom residents had other and VC relationships were a distant second and third, respectively. To substantiate these findings, the analyses were repeated on the data set which included missing values ($n = 56$). The results mirrored the preceding findings.

Bivariate correlations and a multiple regression were used to identify which residents participated in recreation activities at which they met people with whom they had NQSC relationships. It was hypothesized that interaction would be highest among people who had more satisfaction with emotional social support, satisfaction with social contacts at groups, and longer tenure. The proportion of recreation groups at which residents meet people with whom they had NQSC relationships had a significant relationship with satisfaction with emotional social support ($\tau = .28, p < .01$), but not satisfaction with social contacts at groups or tenure₁₁. As expected, satisfaction with social contacts at groups and tenure₁₁ were not significant predictors in the regression and removed from the analysis. While satisfaction with emotional social support was a significant predictor ($B = 0.21, SE = 0.08, \beta = 0.33, p < .05$), it only explained 11% of the variance in the proportion of recreation groups attended at which residents met people with whom they had NQSC relationships. Moreover, the results were not generalizable beyond the sample. The assumption of normality was violated and could not be corrected. To substantiate these findings, the analyses were repeated on the data set which included missing values. A listwise procedure was used to remove cases with missing values ($n = 55$). The results mirrored the preceding findings.

Although not germane to discussions of relationship formation through recreation groups, relationships with staff appeared to occur almost as often as relationships with

other residents. A total of six residents reported VC relationships with staff. Of these, two residents reported VC relationships with family members (one daughter and grandchild) who worked at their facility and five residents reported the development of one or more VC relationships with staff. A total of 15 residents reported NQSC relationships with staff. Of these, 1 resident had a relationship that pre-dated admission but all 15 developed one or more NQSC relationships with staff after they were admitted to the nursing home.

Research Question 4

Bivariate correlations and regressions were used to identify which residents participated in recreation activities. Three regression models were used. Model one included demographic variables: (a) age, (b) gender, (c) education, and (d) socioeconomic status. The desire for novelty in recreation appears to diminish in later life (Iso-Ahola, Jackson, & Dunn, 1994) so participation in activities is likely to have a negative relationship with age. Women (female = 1) tend to socialize more than men (male = 0) so they may participate in a greater number of recreation groups (Agahi, Ahacic, & Parker, 2006; Strain, Grabusic, Searle, & Dunn, 2002). People with more education tend to engage in a greater number of recreation activities so a positive relationship between it and participation was expected (Agahi, Ahacic, & Parker, 2006; Strain, Grabusic, Searle, & Dunn, 2002). Since the distribution of education was leptokurtic, 44% of the sample had completed 12th grade, the variable was dichotomized (≤ 12 years = 0, ≥ 13 years = 1). Lastly, people who have more financial resources tend to participate in a greater number of recreation activities (Agahi, Ahacic, & Parker, 2006; Strain, Grabusic, Searle, & Dunn, 2002) so a positive relationship between it and

participation was expected. Level of financial resources was measured using a dichotomous variable, Medicaid use (No = 0, Yes = 1). Model two included variables associated with socioemotional selectivity theory: (a) satisfaction with social contacts in groups, (b) limited time left, and (c) sum of VC and NQSC family/friends (Lang & Carstensen, 1994, 2002; Lang et al., 1998). The theory suggests that participation in recreation groups may be highest among people who have more satisfaction with social contacts in groups⁺¹ reverse lg10 and less limited time left. In contrast to activity theory, the sum of VC and NQSC family/friends is likely to be unrelated to participation. The third model combines significant or near significant variables from models one and two. The predictors were applied using forced entry.

The relationships among demographic variables (age, gender, education, and Medicaid use) and the proportion of recreation groups attended_{lg10} were examined in the first model. It was hypothesized that the proportion of recreation groups attended would be highest among people who were younger, female, had more education, and did not use Medicaid. Bivariate correlations indicated that the proportion of recreation groups attended_{lg10} had a significant relationship with age ($r = .30, p < .01$) but not gender, education, or Medicaid use. The initial multiple regressions indicated that gender, education, and Medicaid use were not significant predictors and they were removed from the model. The final simple regression was statistically significant ($F(1, 64) = 3.36, p < .05$) but only accounted for 8% of the variance in the outcome variable. The diagnostics indicated that the model was sound (*Durbin-Watson* = 2.09, *VIF* < 10, Breusch-Pagan $F(1, 64) = 2.02, p > .05$, $D(66) = .07, p > .05$, linear plot) and there were no influential cases. The results tenuously contradicted the hypothesis pertaining to age. The

proportion of recreation groups attended_{lg10} increased by 0.002 percentage points as age increased 1 year (see Table 3).

Table 3

Simple Regression Analysis of Age Predicting the Proportion of Recreation Groups Attended_{lg10} (N = 66)

Variables	B	SE B	β
Constant	-0.17	0.05	
Age	0.002	0.001	.30 *

Note $R^2 = .09$. * $p < .05$.

The relationships among variables associated with socioemotional selectivity theory (satisfaction with social contacts in groups_{+1 reverse lg10}, limited time left, and sum of VC and NQSC family/friends) and the proportion of recreation groups attended_{lg10} were examined in model two. It was hypothesized that attendance would be highest among people who had more satisfaction with social contacts in groups and less limited time left but would be unrelated to the sum of VC and NQSC family/friends. Bivariate correlations indicated that the proportion of recreation groups attended_{lg10} had a significant relationship with satisfaction with social contacts in groups_{+1 reverse lg10} ($r = -.44, p < .001$) but not limited time left and sum of VC and NQSC family/friends. The initial multiple regressions indicated that limited time left and sum of VC and NQSC relationships were not significant predictors and they were removed from the analysis. The final simple regression was statistically significant ($F(1, 64) = 14.99, p < .001$) and accounted for 19% of the variance (see Table 4). The diagnostics indicated that the

model was generally sound (*Durbin-Watson* = 1.95, *VIF* < 10, *W*(66) = .97, $p > .05$, linear plot) and there were no influential cases. The Breusch-Pagan test ($F(1, 64) = 5.00$, $p < .05$) indicated that there may be some heteroscedasticity but the ZRESID x ZPRED plot was randomly distributed. The results strongly supported the hypothesis pertaining to satisfaction with social contacts in groups. The proportion of recreation groups attended_{lg10} decreased 0.20 percentage points as satisfaction with social contacts_{+1 reverse lg10} increased 1 point.

Table 4

Simple Regression Analysis of Satisfaction with Social Contacts_{+1 reverse lg10} Predicting the Proportion of Recreation Groups Attended_{lg10} (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	0.16	0.05	
Satisfaction with Social Contacts _{+1 reverse lg10}	-0.20	0.05	-.44 ***

Note $R^2 = .19$. *** $p < .001$.

Significant predictors (age and satisfaction with social contacts_{+1 reverse lg10}) and marginally non-significant predictors (limited time left) were entered into a hierarchical regression. It was hypothesized that the proportion of groups attended would be highest among people who were younger, had more satisfaction with social contacts in groups, and less limited time left. The initial multiple regressions indicated that limited time left was not a significant predictor and it was removed from the model. The final hierarchical regression was statistically significant ($F(2, 63) = 10.87$, $p < .001$) and accounted for 23% of the variance (see Table 5). The diagnostics indicated that the model was sound

(*Durbin-Watson* = 1.98, *VIF* < 10, Breusch-Pagan $F(2, 63) = 0.69, p > .05$, $D(66) = .08, p > .05$, linear plot) and there were no influential cases. The results weakly contradicted the hypothesis pertaining to age and strongly supported the hypothesis pertaining to satisfaction with social contacts in groups. The proportion of recreation groups attended \lg_{10} : (a) increased 0.001 percentage points as age increased 1 year, and (b) decreased 0.18 percentage points as satisfaction with social contacts_{+1 reverse \lg_{10}} increased 1 point. Predicting the proportion of recreation groups attended \lg_{10} appeared to be primarily related to the variable associated with socioemotional selectivity theory ($R^2 = .17$ for Step 2).

Table 5

Hierarchical Regression Analysis Predicting the Proportion of Recreation Groups Attended \lg_{10} (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β	
Step 1				
Constant	-0.02	0.05		
Age	0.002	0.001	.30	*
Step 2				
Constant	0.06	0.05		
Age	0.001	0.001	.26	*
Satisfaction with Social Contacts _{+1 reverse \lg_{10}}	-0.18	0.05	-.41	***

Note $R^2 = .09$ for Step 1; $\Delta R^2 = .17$ for Step 2 ($ps = .001$). * $p < .05$. *** $p < .001$.

Since age was an important predictor and the sample included six people less than 50 years old, the analysis was rerun on the subsample that excluded them ($n = 60$). In contrast to the results for model one (see Table 3), in the subsample, age was not a significant predictor of the proportion of groups attended. However, it reemerged in model three and the findings were similar (see Table 5).

To substantiate the findings, the analyses were rerun on the whole data set (subjects who were below and above 50 years of age) that included missing values. A listwise procedure was used to remove cases with missing values ($n = 58$). The results for all three models were similar to those in Tables 3, 4 and 5.

Research Question 5

A total of nine nursing homes serving an average of 134 residents were involved in the study. Information from the nursing homes and family/friends regarding policies and procedures which influenced interaction with residents had very little variability. The responses were recoded into dichotomous variables (0 = not all the time, 1 = all the time, see Table 6). Since the number of nursing homes involved in the study was small, correlations and chi square tests were not possible. Comparing the proportion of nursing homes staff to the proportion of family/friends that indicated the activity was permitted all the time suggested that the responses' were inconsistent. Family/friends reported lower rates of permission to interact with residents during private visits, pet visits, private parties, meals in the dining room, private meals, recreation groups, public outings, and overnight outings than nursing home staff. Family/friends reported higher rates of permission to interact with residents by telephoning when desired, visiting when desired, and going on private outings than nursing home staff.

Table 6
Permission to Interact All the Time

Activity	Nursing Homes	Family/friends
Telephone When Desired	78%	89%
Visit When Desired	56%	85%
Private Visits	89%	66%
Pet Visits	100%	41%
Private Parties	100%	89%
Meal in Dining Room	88%	70%
Private Meal	100%	63%
Recreation Calendar	89%	7%
Recreation Groups	89%	70%
Public Outings	66%	33%
Private Outings	78%	93%
Overnight Outings	66%	41%

Research Question 6

Residents

6.1 Do residents express a desire for private activities as socioemotional selectivity theory suggests?

Given socioemotional selectivity theory, it was hypothesized that residents would be more interested in activities which afforded privacy than those that did not. Wilcoxon signed-rank tests were used to examine the relative interest in private and public visits and meals. Interest in private visits ($Mdn = 5.00$) was significantly higher than public visits ($Mdn = 4.00$, $z = -3.77$, $p < .001$, $r = -.46$). Interest in private meals ($Mdn = 4.00$) was significantly higher than meals in the dining room ($Mdn = 3.00$, $z = -2.62$, $p < .01$, $r = -.32$). To substantiate these analyses, they were repeated on the data set that included missing values. A listwise procedure was used to remove cases with missing values ($n = 65$ and $n = 62$ respectively). The results mirrored the preceding findings.

Interest in private, semi-private, and public outings was examined using a Friedman's ANOVA. In addition to the non-normality of the data, the independent observations assumption of repeated measures ANOVA was violated making parametric statistics inappropriate for the data. It indicated that interest in public outings ($M = 3.36$, $Mdn = 4.00$), semi-private outings ($M = 3.65$, $Mdn = 4.00$), and private outings ($M = 4.11$, $Mdn = 5.00$) were significantly different from one another ($\chi^2(2) = 19.69$, $p < .001$). Wilcoxon tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analysis. Interests in public and semi-private outings ($z = -2.40$, $p < .0167$, $r = -.30$), public and private outings ($z = -4.11$, $p < .001$, $r = -.51$), and semi-private and private outings ($z = -2.80$, $p > .0167$, $r = -.34$) were significantly different from one another. As

expected, all results indicated that residents demonstrated a preference for private recreation activities. To substantiate these analyses, they were repeated on the data set that included missing values. A listwise procedure was used to remove cases with missing values ($n = 59$). The results mirrored the preceding findings.

6.2 Are there types of recreation activities?

To reduce the data, a series of exploratory factor analyses were run on residents' recreation interest. First, a direct oblimin rotation was used, since the data were likely to be correlated and from a small data set, but it resulted in a factor which only had negative loadings. Second, a varimax rotation was used but one factor included just two variables, visits in public and private spaces. Third, a varimax rotation was used but these variables were removed. Most of the diagnostics indicated that the third analysis was appropriate for the data and returned meaningful results. The variables had sizable relationships with one another, singularity and multicollinearity (Determinant = .008) were not concerns, correlations were compact (KMO = .79), the sample size was adequate, and correlation matrix was not the identity matrix ($\chi^2 = 288.31, p < .001$). However, the factor analysis was less than ideal in two respects. Clear factor analyses have off-diagonals that are small, these were not. The extraction of factors with eigenvalues > 1 (Kaiser, 1960) was tenuous; only 25% of communalities were $> .7$. However, 45% of the residuals had absolute values $> .05$ and the scree plot supported a three factor solution so it was used.

The factors accounted for a total of 62% of the variance; 36%, 13%, and 12% respectively. The analysis suggested three latent constructs: (a) Outings/Social, (b) Nontraditional/Private, and (c) In-house/Private. Most of the factor loadings were clear except for meal in the dining room, which loaded slightly higher on factor 1 than 2, and

webcam, which loaded slightly higher on factor 3 than 2. Logic did not clarify the subscales to which the variables should be attributed so the loadings were used to make the determination. Reliability analyses indicated that the subscales had moderate to strong internal consistency. The first subscale, Outings/Social, was comprised of group outings, semiprivate outings, outings without staff, recreation groups, and meals in the dining room ($\alpha = .84$). The second subscale, In-house/Private, was comprised of telephone, private meals, and private parties ($\alpha = .63$). The third subscale, Nontraditional/Private, was comprised of e-mail, webcam, pet visits, and overnight outings ($\alpha = .68$). Subscale scores were constructed by calculating the mean of the respective variables.

To substantiate these findings the factor analysis was rerun using the data set that included missing values. The cases with missing data were excluded using a listwise procedure ($n = 51$). There were two minor variations in this data set. First, the proportion of residuals $> .05$ rose from 45% to 51%. Second, webcam loaded slightly higher on factor 2 than factor 3. Since the changes were slight, the subscales were constructed in a similar fashion. Each had moderate to strong internal consistency.

The measures of central tendency and distribution of the subscales were examined. Outings/Social had a mean was 3.41 ($sd = 1.09$), median = 3.60 ($ICQ = 1.40$), and distribution that was not normal ($D(66) = 0.13, p < .05$). In-house/Private had a mean was 3.59 ($sd = 1.00$), median = 4.00 ($ICQ = 1.33$), and distribution that was not normal ($D(66) = 0.17, p > .001$). Nontraditional/Private had a mean was 2.98 ($sd = 1.10$), median = 2.88 ($ICQ = 2.00$), and distribution that was not normal ($D(66) = 0.13, p > .05$).

A Friedman's ANOVA indicated a significant difference among the three subscales ($\chi^2(2) = 14.93, p < .001$). One-tailed Wilcoxon tests with a Bonferroni correction ($p < .0167$) were used in the post hoc analyses. Interests in In-house/Private and Nontraditional/Private activities ($z = -3.48, p < .001, r = -.43$) as well as Outings/Social and Nontraditional/Private activities ($z = -2.84, p < .0167, r = -.35$) were significantly different from one another. However, Outings/Social and In-house/Private activities ($z = -0.75, p > .02$) were not significantly different from one another. In general, residents were most interested in In-house/Private recreation activities followed by Outings/Social and Nontraditional/Private activities respectively. Per socioemotional selectivity theory, In-house/Private activities were favored over Outings/Social but the difference was not statistically significant. In contrast to socioemotional selectivity theory, Nontraditional/Private activities, despite emphasizing privacy, were less attractive than the other two types by a significant margin.

To substantiate these findings two analyses were run. First, the data were analyzed using a repeated measures ANOVA. While the data were not normally distributed, the distribution of the underlying populations was not certain and parametric ANOVA are robust to violations of some assumptions (Field, 2005). The results echoed the preceding findings. They indicated that there was a significant difference among the three scales ($F(2, 130) = 9.41, p < .001$). The difference between Outings/Social and Nontraditional/Private activities ($p < .05$) as well as In-house/Private and Nontraditional/Private activities ($p < .01$) were significantly different from one another but Outings/Social and In-house/Private were not ($p > .05$). Second, the nonparametric analysis was run on the data set which included missing values ($n = 51$). Results from

the Friedman's ANOVA and most of the Wilcoxon post hoc tests were similar.

However, interest in Outings/Social and Nontraditional/Private activities ($z = -1.73, p > .0167$) were not significantly different from one another.

6.3 Which residents are interested in each type of recreation activity?

Bivariate correlations and regressions were used to identify which residents were interested in the three types of recreation activities. As before, three regression models were used. Model one included demographic variables: (a) age, (b) gender, (c) education, and (d) socioeconomic status (Agahi, Ahacic, & Parker, 2006; Iso-Ahola, Jackson, & Dunn, 1994; Strain, Grabusic, Searle, & Dunn, 2002). Model two included variables associated with socioemotional selectivity theory: (a) satisfaction with social contacts in groups, (b) limited time left, and (c) closeness (Lang & Carstensen, 1994, 2002; Lang et al., 1998). Model three included significant or near significant variables from models one and two. Predictors were applied using forced entry.

6.3a Which residents are interested in Outings/Social activities?

The relationships among demographic variables (age, gender, education, and Medicaid use) and interest in Outings/Social recreation activities (public outings, semiprivate outings, private outings, recreation groups, and meals in the dining room) were examined in the first model. It was hypothesized that interest in Outings/Social recreation activities would be highest among people who were younger, female, and did not use Medicaid. Education was unlikely to have a relationship with interest in Outings/Social but was included since the analysis was exploratory. Bivariate correlations indicated that interest in Outings/Social recreation activities had a significant relationship with age ($\tau = -.22, p < .01$) but not gender, education, or Medicaid use.

Preliminary analysis indicated that the standardized residuals were characterized by heteroscedasticity so the outcome variable was transformed by raising it to the second power. As expected, gender, education, and Medicaid use were not significant predictors and were removed from the analysis. The final simple regression equation was significant ($F(1, 64) = 6.28, p < .05$) but only explained 9% of the variance in the outcome variable (see Table 7). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.69, *VIF* < 10, Breusch-Pagan $F(1, 64) = 2.45, p > .05$, $D(66) = .10, p > .05$, linear plot) and there were no influential cases. The results tenuously supported the hypothesis pertaining to age. Interest in outing/social² activities decreased by 0.01 points as age increased 1 year.

Table 7

Simple Regression Analysis of Age Predicting Interest in Outings/Social² Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	2.34	0.21	
Age	-0.01	0.003	-.30*

Note $R^2 = .09$. * $p < .05$.

The relationships among variables associated with socioemotional selectivity theory (satisfaction with social contacts in groups, limited time left, and closeness) and interest in Outings/Social recreation activities were examined in model two. It was hypothesized that interest in Outings/Social recreation activities would be highest among people who had higher rates of satisfaction with social contacts, less limited time left, and

more closeness. Bivariate correlations indicated that interest in Outings/Social recreation had a significant relationship with satisfaction with social contacts in groups_{S+1 reverse lg10} ($\tau = .43, p < .001$) and limited time left ($\tau = -.31, p = .001$) but not closeness. The initial multiple regression indicated that closeness was not a significant predictor and it was removed from the model. The final multiple regression was significant ($F(2, 63) = 12.95, p < .001$) and explained 27% of the variance in the outcome variable (see Table 8). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.56, *VIF* < 10, Breusch-Pagan $F(2, 63) = 1.03, p > .05$, $W(66) = .98, p > .05$, linear plot) and there were no influential cases. The results strongly supported the hypothesis pertaining to satisfaction with social contacts in groups and moderately supported the hypothesis pertaining to limited time left. When the other predictor was held constant, interest in outing/social² activities: (a) decreased by 16.96 points as satisfaction with social contacts_{S+1 reverse lg10} increased 1 point and (b) decreased by 1.51 points as limited time left increased 1 point.

Table 8

Multiple Regression Analysis of Variables Associated with Socioemotional Selectivity Theory Predicting Interest in Outings/Social² Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	22.79	2.11	
Satisfaction with Social Contacts _{S+1 reverse lg10}	-16.96	4.51	-.40 ***
Time Left	-1.51	0.51	-.32 **

Note $R^2 = .29$. ** $p < .01$. *** $p < .001$.

Significant predictors (age, satisfaction with social contacts_{+1 reverse lg10}, and limited time left) and one marginally insignificant predictor (Medicaid use) from models one and two were examined in model three, a hierarchical regression. It was hypothesized that interest in Outings/Social recreation activities would be highest among people who were younger, had higher rates of satisfaction with social contacts in groups, had less limited time left, and did not use Medicaid. Limited time left and Medicaid use were not significant predictors in the initial hierarchical regression and were removed from the model. While a hierarchical regression that included age and satisfaction with social contacts_{+1 reverse lg10} was significant, the residuals were not normally distributed. The issue was corrected by rising age to the third power. The final hierarchical regression equation was significant ($F(2, 63) = 14.33, p < .001$) and explained 29% of the variance in the outcome variable (see Table 9). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.68, *VIF* < 10, Breusch-Pagan $F(2, 63) = 0.54, p > .05, W(66) = .99, p > .05$, linear plot) and there were no influential cases. The results moderately supported the hypothesis pertaining to age and strongly supported the hypothesis pertaining to satisfaction with social contacts in groups. When the other predictors were held constant, interest in outing/social² activities; (a) decreased by 0.00001 points as age³ increased 1 year and (b) decreased by 19.43 points as satisfaction with social contacts_{+1 reverse lg10} increased 1 point. Limited time left, which had been significant in model two, was slightly non-significant in model three. Predicting interest in Outings/Social² recreation groups appeared to be primarily related to the variables associated with socioemotional selectivity theory ($R^2 = .21$ for Step 2). While the Beta value of age³ is incredibly small due to the transformation, this equation is useful for examining the relative contribution

of variables suggested by the literature and socioemotional selectivity theory. To examine the practical significance of age, see Table 7.

Table 9

Hierarchical Regression Analysis of Variables Predicting Interest in Outings/Social² Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	<i>β</i>	
Step 1				
Constant	17.62	1.97		
Age ³	-0.00001	0.000004	-.32	**
Step 2				
Constant	24.36	2.32		
Age ³	-0.00001	0.000004	-.35	**
Satisfaction with Social Contacts _{+1 reverse lg10}	-19.43	4.42	-.46	***

Note $R^2 = .10$ for Step 1; $\Delta R^2 = .21$ for Step 2 ($ps < .001$). ** $p < .01$. *** $p < .001$.

Since age was an important predictor and the sample included six people less than 50 years old, the analysis was rerun to exclude them ($n = 60$). The results mirrored the preceding findings.

To substantiate these findings, the analyses were run on the full data set (including subjects above and below the age of 50) that included missing values. A listwise procedure was used to remove cases with missing values. The results for model one ($n = 55$) and two ($n = 54$) were similar but model three ($n = 54$) results were somewhat different. Limited time left was a significant predictor. The hierarchical

regression was significant ($F(3, 50) = 14.17, p < .001$) and explained 43% of the variance in the outcome variable (see Table 10). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.41, *VIF* < 10, Breusch-Pagan $F(3, 50) = 0.51, p > .05, W(54) = .99, p > .05$, linear plot) and there were no influential cases. The results tenuously supported the hypotheses pertaining to age and limited time left and strongly supported the hypothesis pertaining to satisfaction with social contacts in groups and limited time left. When the other predictors were held constant, interest in outing/social² activities: (a) decreased by 0.00001 point as age³ increased 1 year, (b) decreased by 19.73 points as satisfaction with social contacts_{+1 reverse lg10} increased 1 point, and (c) decreased by 1.34 points as limited time left increased by 1 point. Most of the results are similar to those in the data set in which missing values were replaced. However, limited time left appears to border on significance. The change reflects the conservative approach to replacing the missing values. Predicting interest in Outings/Social² recreation groups appeared to be primarily related to the variables associated with socioemotional selectivity theory ($R^2 = .33$ for Step 2).

Table 10

Hierarchical Regression Analysis of Variables Predicting Interest in Outings/Social² Recreation Activities (N = 54)

Variables	<i>B</i>	<i>SE B</i>	β	
Step 1				
Constant	18.00	2.16		
Age ³	0.00	0.00	-.36	**
Step 2				
Constant	27.13	2.39		
Age ³	-0.00001	0.000004	-.29	*
Satisfaction with Social Contacts _{+1 reverse lg10}	-19.73	4.44	-.47	***
Limited Time Left	-1.34	0.57	-.27	*

Note $R^2 = .13$ for Step 1; $\Delta R^2 = .33$ for Step 2 ($ps < .001$). * $p < .05$. ** $p < .01$. *** $p < .001$.

6.3b Which residents are interested in In-house/Private activities?

The relationships among demographic variables (age, gender, education, and Medicaid use) and interest in In-house/Private recreation activities (telephone, private meal, and private party) were examined in the first model. It was hypothesized that participation in interest in In-house/Private recreation activities would be highest among people who were older, female, and used Medicaid. Education was unlikely to have a relationship with interest in In-house/Private activities but was included since the analysis was exploratory. Bivariate correlations indicated that interests in In-house/Private

recreation activities had a significant relationship with age ($\tau = -.28, p < .01$) and gender ($\tau = .28, p < .01$) but not education and Medicaid use. Preliminary regression analysis indicated that the standardized residuals were characterized by heteroscedasticity so the outcome variable was transformed by raising it to the third power. The initial multiple regression indicated that education and Medicaid use were not significant predictors and they were removed from the analysis. The final multiple regression was significant ($F(2, 63) = 8.97, p = .001$) and explained 20% of the variance in the outcome variable (see Table 11). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.83, *VIF* < 10, Breusch-Pagan $F(2, 63) = 1.18, p > .05$, $W(66) = .96, p > .05$, linear plot) and there were no influential cases. The results moderately contradicted the hypothesis pertaining to age and supported the hypothesis pertaining to gender. When the other variable was held constant, interest in In-house/Private³ activities: (a) decreased by 0.91 points as age increased 1 year and (b) was 25.00 points higher for women than men. While socioemotional selectivity theory suggests that interest in private activities is likely to be higher in later life, the results from this analysis suggest the converse. Health may be a mitigating variable and should be examined in future research.

Table 11

Multiple Regression Analysis of Demographic Variables Predicting Interest in In-house/Private³ Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	107.09	21.97	
Age	-0.91	0.29	-.35 **
Gender (male = 0, female = 1)	25.00	8.27	.34 **

Note $R^2 = .26$ ** $p < .01$.

The relationships among variables associated with socioemotional selectivity theory (satisfaction with social contacts in groups, limited time left, and closeness) and interest in In-house/Private recreation activities were examined in model two. It was hypothesized that interest in In-house/Private recreation activities would be highest among people who had lower rates of satisfaction with social contacts in groups, more limited time left, and more closeness. Bivariate correlations indicated that interest in In-house/Private recreation activities had a significant relationship with social contacts in groups ($\tau = .20, p < .05$) and limited time left ($\tau = .20, p = .05$) but not closeness. The initial multiple regressions indicated that limited time left and closeness were not significant predictors so they were removed from the analysis. The final simple regression equation was significant ($F(1, 64) = 7.03, p < .05$) but only explained 10% of the variance in the outcome variable (see Table 12). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.91, *VIF* < 10, Breusch-Pagan $F(1, 64) = 0.73, p > .05, W(66) = .98, p > .05$, linear plot) and there were no influential cases. The results

tenuously contradicted the hypothesis pertaining to satisfaction with social contacts in groups. Interest in In-house/Private³ activities decreased by 68.61 points as satisfaction with social contacts_{+1 reverse lg10} increased 1 point.

Table 12

Simple Regression Analysis of Satisfaction with Social Contacts in Groups_{+1 reverse lg10} Predicting Interest in In-house/Private³ Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	<i>β</i>
Constant	78.39	9.36	
Satisfaction with Social Contacts _{+1 reverse lg10}	-68.61	25.87	-.31 *

Note $R^2 = .10$. * $p < .05$.

Significant predictors (age, gender, and satisfaction with social contacts_{+1 reverse lg10}) and a marginally non-significant predictor (limited time left) were entered into a hierarchical regression in model three. It was hypothesized that interest in In-house/Private recreation activities would be highest among people who were older, were female, had lower rates of satisfaction with social contacts in groups, and more limited time left. The initial hierarchical regression indicated that limited time left was not a significant predictor and it was removed from the analysis. The final equation was significant ($F(3, 62) = 8.89, p < .001$) and explained 28% of the variance in the outcome variable (see Table 13). The diagnostics indicated that the model was sound (*Durbin-Watson* = 1.85, *VIF* < 10, Breusch-Pagan $F(3, 62) = 1.46, p > .05$, $W(66) = .97, p > .05$, linear plot) and there were no influential cases. The results moderately contradicted the hypothesis pertaining to age, tenuously contradicted the hypothesis pertaining to

satisfaction with social contacts in groups, and tenuously supported the hypothesis pertaining to gender. When the other predictors were held constant, interest in In-house/Private³ activities: (a) decreased by 0.97 points as age increased 1 year, (b) was 20.22 points higher for women than men, and (c) decreased by 63.21 points as satisfaction with social contacts_{+1 reverse lg10} increased 1 point. Predicting interest in In-house/Private³ recreation groups appeared to be primarily related to the demographic variables ($R^2 = .22$ for Step 1).

Table 13

Hierarchical Regression Analysis of Variables Predicting Interest in In-house/Private³ Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β	
Step 1				
Constant	107.09	21.97		
Age	-0.91	0.29	-.35	**
Gender (male = 0, female = 1)	25.00	8.27	.34	**
Step 2				
Constant	135.31	23.54		
Age	-0.97	0.28	-.38	**
Gender (male = 0, female = 1)	20.22	8.11	.27	*
Satisfaction with Social Contacts _{+1 reverse lg10}	-63.21	23.87	-.29	*

Note $R^2 = .26$ for Step 1; $\Delta R^2 = .07$ for Step 2 ($ps < .05$). * $p < .05$. ** $p < .01$.

Since age was an important predictor and the sample included six people less than 50 years old, the analysis was rerun to exclude them ($n = 60$). The results were similar to the preceding findings. However, the hypothesis pertaining to satisfaction with social contacts in groups was moderately supported in models 2 ($p < .01$) and 3 ($p < .01$) rather than tenuously supported.

To substantiate these findings, the analyses were rerun using the whole data set (including subjects above and below the age of 50) in which missing values were replaced. A listwise procedure was used to remove the case with missing values. The results in models one ($n = 61$), two ($n = 60$), and three ($n = 60$) were similar to those in the data set in which the missing values were replaced.

6.3c Which residents are interested in Nontraditional/Private recreation activities?

The relationships among demographic variables (age, gender, education, and Medicaid use) and interest in Nontraditional/Private activities (e-mail, webcam, pet visits, and outings overnight) were examined in the first model. It was hypothesized that interest in Nontraditional/Private recreation activities would be highest among people who were younger, female, had more education, and did not use Medicaid. Bivariate correlations indicated that interests in Nontraditional/Private recreation activities had a significant relationship with education ($\tau = .19, p < .05$) and age ($\tau = -.28, p < .01$). The initial multiple regression indicated that gender and Medicaid use were not significant predictors and they were removed. Furthermore, when controlling for age, education was not significant and was removed. The final simple regression equation was significant ($F(1, 64) = 14.69, p < .001$) and explained 19% of the variance in the outcome variable

(see Table 14). The diagnostics indicated that the model was sound (*Durbin-Watson* = 2.20, *VIF* < 10, Breusch-Pagan $F(1, 64) = 0.03, p > .05$, $W(66) = .98, p > .05$, linear plot) and there were no influential cases. The results strongly supported the hypothesis pertaining to age. Interest in Nontraditional/Private activities (5-point scale) decreased by 0.03 points as age increased 1 year.

Table 14

Simple Regression Analysis of Age Predicting Interest in Nontraditional/Private Recreation Activities (N = 66)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	5.52	0.68	
Age	-0.03	0.009	-.43 ***

Note $R^2 = .19$. *** $p < .01$.

The relationships among variables associated with socioemotional selectivity theory (satisfaction with social contacts in groups_{+1 reverse lg10}, limited time left, and closeness) and interest in Nontraditional/Private recreation activities were examined in model two. It was hypothesized that interest in Nontraditional/Private recreation activities would be highest among people who had lower rates of satisfaction with social contacts in groups, more limited time left, and more closeness. Bivariate correlations indicated that interest in Nontraditional/Private recreation activities did not have a significant relationship with any of the predictors. Despite removing the least significant predictors, a series of regression equations indicated that there was not a significant relationship between the predictors and outcome variable. However, satisfaction with

social contacts_{+1 reverse lg10} was strong enough to warrant further investigation ($B = -1.09$, $SE = 0.83$, $\beta = -.16$).

Significant predictors (age) and marginally non-significant predictors (education, gender and satisfaction with social contacts in groups_{+1 reverse lg10}) were entered into a hierarchical regression in model three. It was hypothesized that interest in Nontraditional/Private recreation activities would be highest among people who were younger, had more education, who were female, and had lower rates of satisfaction with social contacts in groups. Despite removing the least significant variables, only age predicted interest in Nontraditional/Private recreation activities. Therefore, the results were identical to those in model one (see Table 14).

Since age was an important predictor and the sample included six people less than 50 years old, the analysis was rerun to exclude them ($n = 60$). The results were similar to the preceding findings however the hypothesis pertaining to age was moderately ($p < .01$) rather than strongly supported.

To substantiate these findings, the analyses were run on the data set that included missing values. A listwise procedure was used to remove cases with missing values. The results for models two and three were similar but the results for model one was somewhat different. Model one examined the hypotheses that interest in Nontraditional/Private recreation activities would be highest among people who were younger, female, had more education, and did not use Medicaid. Gender and Medicaid use were not a significant predictors and removed from the analysis. The final multiple regression equation was significant ($F(2, 56) = 8.65$, $p = .001$) and explained 21% of the variance in the outcome variable (see Table 15). The diagnostics indicated that the model was sound (*Durbin-*

$Watson = 1.88$, $VIF < 10$, Breusch-Pagan $F(2, 56) = 2.34$, $p > .05$, $W(59) = .98$, $p > .05$, linear plot) and there were no influential cases. The results moderately supported the hypothesis pertaining to age and tenuously supported the hypothesis pertaining to education. Interest in Nontraditional/Private activities: (a) decreased by 0.03 points as age increased 1 year, and (b) was 0.64 points higher for people with a college education than those without it. The results pertaining to age were similar to those in the data set in which the missing values were replaced. The significance of education, however, appeared to border on significance since it was not significant in the other data set.

Table 15

Multiple Regression Analysis of Demographic Variables Predicting Interest in Nontraditional/Private Recreation Activities (N = 59)

Variables	<i>B</i>	<i>SE B</i>	β
Constant	5.08	0.72	
Age	-0.03	0.009	-.38**
Education ($\leq 12 = 0$, $\geq 13 = 1$)	0.64	0.31	.24*

Note $R^2 = .21$. * $p < .05$. ** $p < .01$.

Family/Friends

6.4 Do family/friends express a desire for private activities as socioemotional selectivity theory suggests?

Given socioemotional selectivity theory, it was hypothesized that family/friends' would be more interested in activities which afforded privacy than those that did not. One-tailed Wilcoxon signed-rank tests were conducted to examine the relative interest in related recreation activities. Interest in private visits ($Mdn = 4.00$) was significantly

higher than in public visits ($Mdn = 3.00, z = -3.76, p < .001, r = -.72$). Interest in private parties ($Mdn = 4.00$) was significantly higher than in public parties ($Mdn = 3.00, z = -3.42, p < .001, r = -.66$). Interest in private meals ($Mdn = 4.00$) was significantly higher than in meals in the dining room ($Mdn = 3.00, z = -2.54, p < .01, r = -.49$).

The difference among family/friend interest in private, semi-private, and public outings was examined using a Friedman's ANOVA. In addition to the non-normality of the data, the independent observations assumption of repeated measures ANOVA was violated making parametric statistics inappropriate for the data (Field, 2005). It indicated that interest in public outings ($Mdn = 2.50$), semi-private outings ($Mdn = 3.50$), and private outings ($Mdn = 4.00$) were significantly different from one another ($\chi^2(2) = 10.36, p < .01$). Wilcoxon tests with a Bonferroni correction were used as post hoc tests. Interests in public and semi-private outings ($z = -2.54, p < .0167, r = -.52$), as well as public and private outings ($z = -2.72, p < .0167, r = -.56$), were significantly different from one another. However, semi-private and private outings ($z = -1.34, p > .0167$) were not significantly different from one another. All but one of the analyses, semi-private and private outings, indicated that family/friends demonstrated a significant preference for private recreation activities. To substantiate these analyses, they were repeated on the data set that included missing values. A listwise procedure was used to remove the case with missing values (meals $n = 26$, outings $n = 24$). The results mirrored the preceding findings.

6.5 Which family/friends are interested in each activity?

Since the sample of family/friends was small ($n = 27$), an exploratory factor analysis could not be used to reduce the recreation interest data. Additionally, multiple

regressions could not be used to describe who was interested in each type of recreation activity. A series of simple regressions were calculated but they explained less than 10% of the variance in the outcome variables and were not generalizable beyond the sample. To describe who was interested in each type of activity, each interest was compared to family/friend demographic variables (gender, age, education, sum of dependents, retirement, miles from nursing home, health limitation, and ease of transportation) using nonparametric correlations and Mann-Whitney U tests. The analyses were performed on the whole sample ($n = 27$) as well as the sub-sample that indicated that the activity was viable (communicate by telephone $n = 26$, communicate by internet $n = 19$, get to the nursing home $n = 22$, and able to take residents on outings $n = 21$). The only activities which did not have significant relationships with demographic variables were attending recreation groups and pet visits. Two activities, meal in the dining room and overnight outings, had one missing value each. To substantiate the findings, the analyses for these items were rerun on the data sets that included the missing values. In both cases, the results mirrored the findings in data sets in which missing values were replaced.

Family/friends who had health limitations and transportation difficulties appeared to be more interested in various forms of communication with residents. Interest in telephoning had a significant negative correlation with ease of transportation in the full sample ($\tau = -.34, p < .05$, one-tailed) and the sub-sample that was capable of the activity ($\tau = -.33, p < .05$, one-tailed). Additionally, telephoning had a significant positive correlation with health limitations ($\tau = .31, p < .05$, one-tailed) in the sub sample. Interest in e-mailing had a significant negative correlation with ease of transportation in the full sample ($\tau = -.39, p < .01$, one-tailed) and the sub-sample that was capable of the activity

($\tau = -.56, p < .01$, one-tailed). Additionally, e-mailing had a significant positive correlation with health limitations ($\tau = .46, p < .05$, one-tailed) in the sub sample. Interest in webcams was significantly higher for people who worked ($Mdn = 4.00$) than those who were retired ($Mdn = 1. U = 35.50, p < .01$, two-tailed, $r = -.54$) in the full sample. The results were similar for the sub-sample that was capable of the activity (*Worked* $Mdn = 4.00$, *Retired* $Mdn = 2.00, U = 17.50, p < .01$, two-tailed, $r = -.45$). Additionally, webcam had a significant negative correlation with ease of transportation ($\tau = -.36, p < .05$, one-tailed) in the latter sample.

Family/friends' interests in socializing with residents at the nursing home appeared to be influenced by a number of factors, including distance from the nursing home, health, ease of transportation, work status, sum of dependents, and age. Interest in public visits at the nursing home had a significant negative correlation with distance from the nursing home in the full sample ($\tau = -.54, p < .01$, two-tailed) and the sub-sample that was capable of the activity ($\tau = -.51, p < .01$, two-tailed). Additionally, public visits was significantly lower for people who worked ($Mdn = 3.00$) than those who were retired ($Mdn = 4. U = 30.00, p < .05$, two-tailed, $r = -.44$) in the latter sample. Interest in private visits at the nursing home had a significant positive correlation with sum of dependents in the full sample ($\tau = .41, p < .05$, two-tailed) as well as the sub-sample that was capable of the activity ($\tau = .42, p < .05$, two-tailed). Interest in public parties at the nursing home had a significant positive correlation with health limitations in the full sample ($\tau = .38, p < .01$, two-tailed) and the sub-sample that was capable of the activity ($\tau = .34, p < .05$, two-tailed). Additionally, public parties had a significant negative correlation with ease of transportation ($\tau = -.48, p < .01$, two-tailed) in the latter sample. Interest in private

parties at the nursing home was not significantly correlated with any of the demographic variables in the full sample. Among the sub-sample that was capable of the activity, it had a significant negative relationship with ease of transportation ($\tau = -.48, p < .05$, two-tailed). Interest in meals in the dining room at the nursing home had a significant positive correlation with health limitations in the full sample ($\tau = .53, p < .01$, two-tailed) and the sub-sample that was capable of the activity ($\tau = .51, p < .01$, two-tailed). Additionally, meals in the dining room had a significant negative correlation with distance from the nursing home ($\tau = -.37, p < .05$, two-tailed) in the latter sample. Interest in meals in a private space at the nursing home had a significant positive correlation with distance to the nursing home ($\tau = .32, p < .05$, two-tailed). Among the sub-sample that was capable of getting to the nursing home most of the time, it had a significant negative relationship with family/friend age ($\tau = -.38, p < .05$, two-tailed).

Family/friends interest in going on various types of outings with residents appeared to have an important relationship with sum of dependents and, to a lesser degree, retirement status and age. In the full sample, interest in semi-private outings was significantly higher for people who worked ($Mdn = 4.00$) than those who were retired ($Mdn = 2.00, U = 37.00, p < .05$, two-tailed, $r = -.42$). There was also a significant positive relationship between interest in semi-private outings and the sum of dependents ($\tau = .40, p < .05$, two-tailed). However, these relationships were not present in the sub-sample that was capable of the activity. There was a significant positive relationship between interest in public outings and the sum of dependents in the full sample ($\tau = .38, p < .05$, two-tailed) but not the sub-sample that was capable of the activity. In the full sample, interest in taking residents on outings without nursing home staff had a

significant negative correlation with family/friends' age ($\tau = -.39, p < .01$, two-tailed) and positive correlation with sum of dependents ($\tau = .48, p < .01$, two-tailed). The results pertaining to dependents ($\tau = .49, p < .05$, two-tailed), but not age, were similar for the sub-sample that was capable of the activity. Interest in taking residents on overnight outings had a positive correlation with sum of dependents in the full sample ($\tau = .56, p < .01$, two-tailed) and the sub-sample that was capable of the activity ($\tau = .49, p < .05$, two-tailed).

In addition to recreation interests, all of the family/friends were asked if they would like to receive information that may enhance their interaction with residents. Interest in receiving a recreation calendar had a significant positive correlation with family/friends' education ($\tau = .36, p < .05$, one-tailed). Results from the data set that included the missing values were similar to the preceding finding. Interest in receiving information to improve the quality of contact with residents had a significant negative correlation with ease of transportation ($\tau = -.60, p < .001$, one-tailed). Interest in receiving information to improve the quality of visits was not significantly correlated with any of the demographic variables.

6.6 What recreation interests do residents and family/friends share?

Residents' interest in the various recreation activities was ranked (see Figure I). They were extremely interested in private visits and private outings. They were very interested in communicating by telephone, private parties, private meals, pet visits, public visits, public outings, and semi-private outings. Residents were somewhat interested in communicating by webcam, communicating by e-mail, meals in the dining room and recreation groups. They were least interested in overnight outings.

Family/friends' interest in the various recreation activities was ranked (see Figure II). They were extremely interested in private visits. Family/friends were very interested in communicating by telephone, private parties, private meals, and private outings. Interest in semi-private outings bordered somewhat and very interested. Family/friends were somewhat interested in communicating by webcam, public visits, public parties, meals in the dining room, and recreation groups. Interest in public outings bordered a little and somewhat interested. Lastly, family/friends were not interested in communicating by e-mail or overnight outings.

While residents and family/friends expressed a general preference for recreation activities which afforded privacy, there were differences between them. Differences were examined by comparing like items using one-tailed Wilcoxon signed-rank tests. Of the 14 pairs, 5 were significantly different. Residents ($M = 3.29$, $Mdn = 3.00$) were significantly more interested in using a webcam to communicate than family/friends ($M = 2.70$, $Mdn = 3.00$, $z = -2.43$, $p < .01$, $r = -.47$). Residents ($Mdn = 4.00$) were significantly more interested in public visits than family/friends ($Mdn = 3.00$, $z = -2.35$, $p < .01$, $r = -.45$). Residents ($M = 3.56$, $Mdn = 4.00$) were significantly less interested in private parties than family/friends ($M = 4.11$, $Mdn = 4.00$, $z = -2.23$, $p < .05$, $r = -.45$). Residents ($Mdn = 4.00$) were significantly more interested in public outings than family/friends ($Mdn = 2.50$, $z = -1.99$, $p < .05$, $r = -.41$). Residents ($Mdn = 2.00$) were significantly more interested in overnight outings than family/friends ($Mdn = 1.00$, $z = -2.67$, $p < .01$, $r = -.51$). The analyses were repeated on the data set that included missing values and the results mirrored the preceding findings.

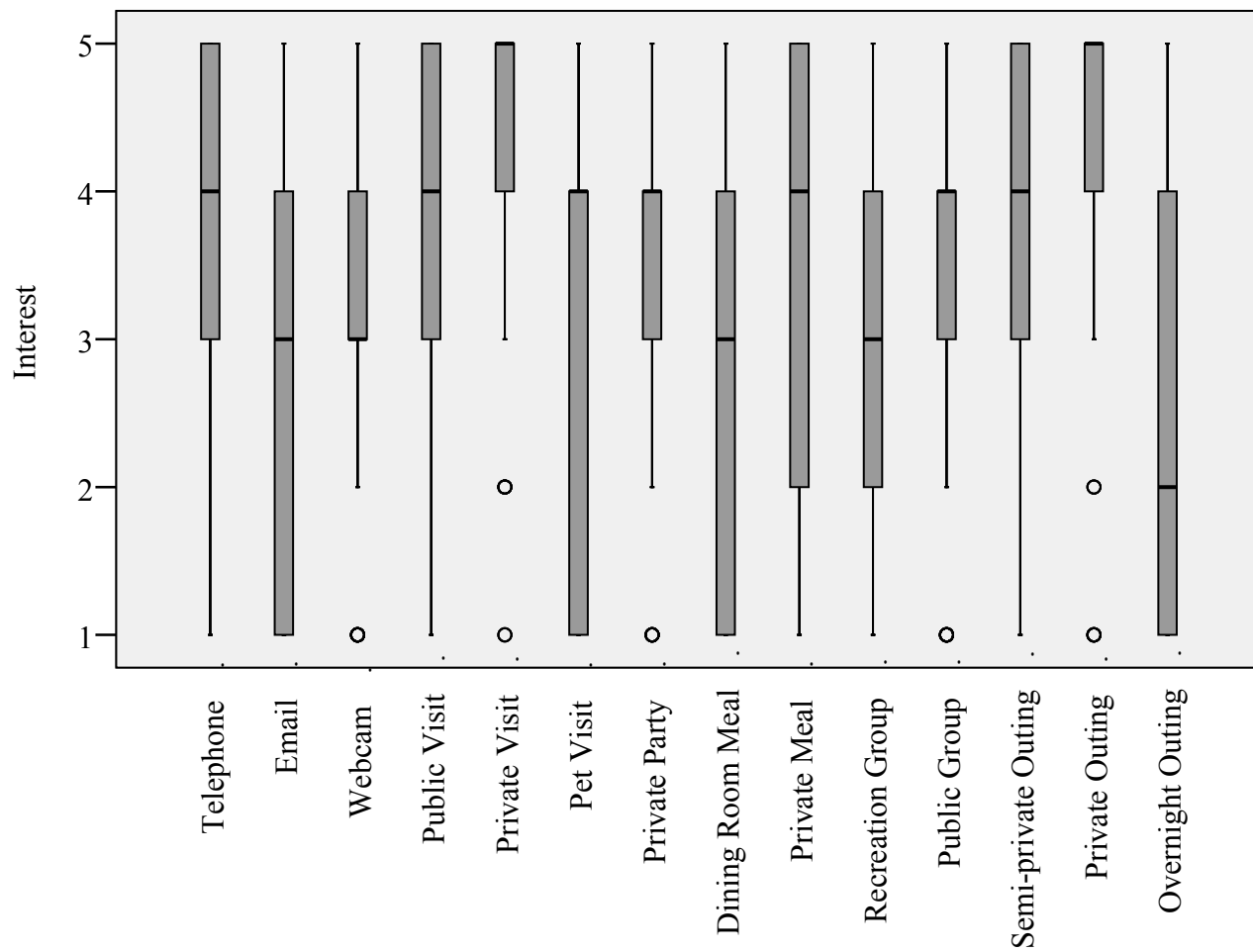


Figure I. Residents' interest in recreation activities.

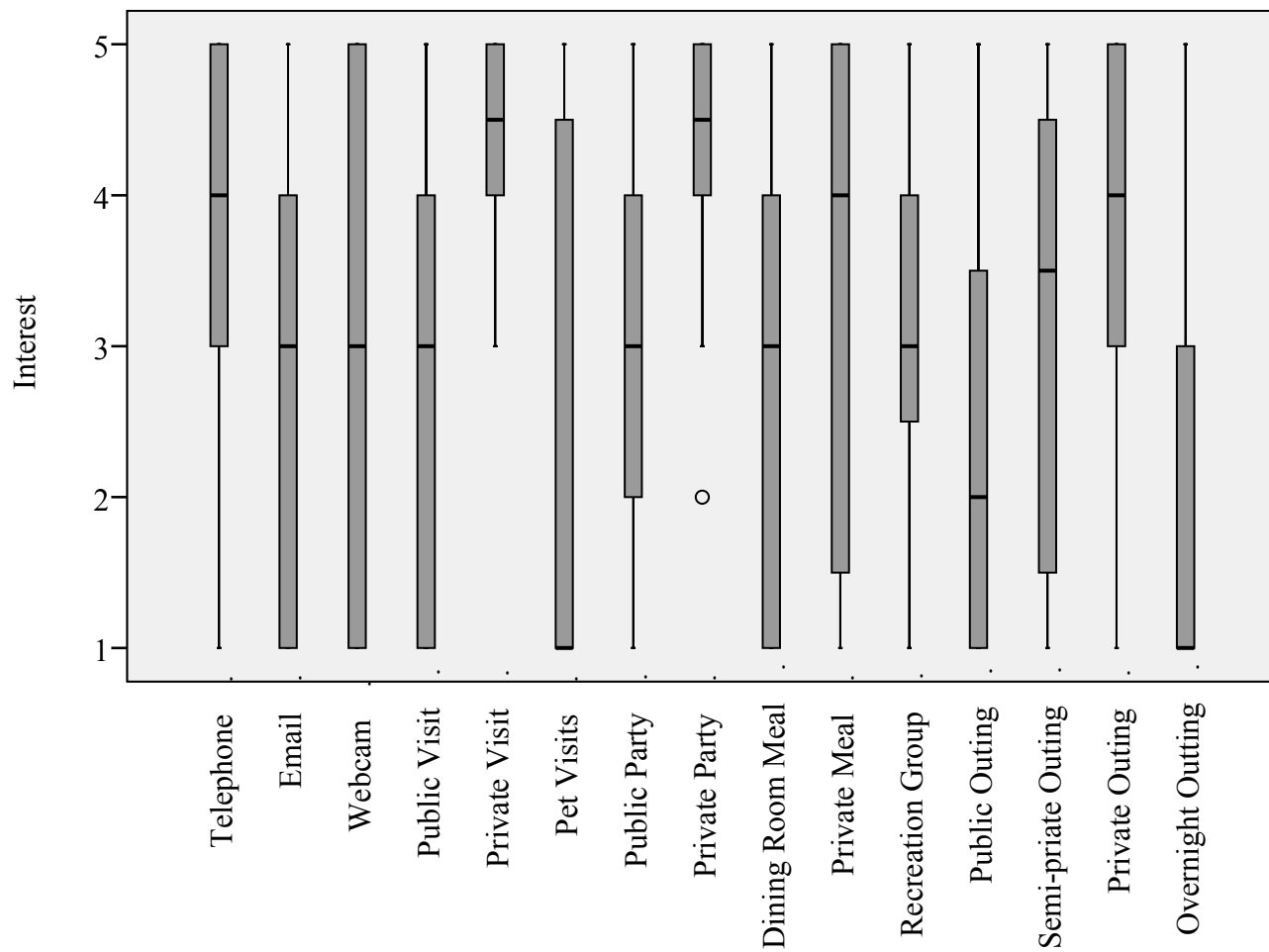


Figure II. Family/friends' interest in recreation activities.

CHAPTER 5. CONCLUSIONS

Research Question 1

1.1 How many close and important people are in residents' social networks?

Residents reported a mean of 4.21 ($sd = 3.00$) and median of 4.00 ($IQR = 6.00$) of VC relationships. They reported a mean of 4.03 ($sd = 2.60$) and median of 3.00 (IQR of 3.25) of NQSC relationships. The sums of VC and NQSC relationships were not significantly different from one another.

1.2 Who do residents identify as close and important people?

Residents had one or more VC relationships with spouses (12%), children (67%), other kin (64%), and non-kin (35%). When comparing the sum of the latter three categories, residents appeared to have a similar number of VC relationships with children and other kin but had far fewer relationships with non-kin than both of the previous categories. There was a medium effect in the difference between children and non-kin as well as other kin and non-kin. The results are consistent with findings from Lang, Staudinger, and Carstensen (1998) who concluded that older adults' inner circles tend to include kin relationships.

Residents did not report NQSC relationships with spouses but did so with children (5%), other kin (45%), and non-kin (58%). When comparing the sum of these categories, residents appeared to have a similar number of NQSC relationships with other kin and non-kin. However, they had more relationships with other kin and non-kin than children. The magnitude of these differences was large.

Although the number of spouses and children was inherently limited, as expected (Carstensen, 1991; Gaugler, Anderson, Leach, 2003; Wright, 2000), residents were

particularly close to them. Residents primarily described their relationships with children as VC, not NQSC, and the magnitude of the difference was large. However, there were some exceptions in regards to nuclear family members. Two residents were married but did not describe their relationship with their spouse as VC or NQSC. Similarly, 27% of residents had one or more relationships with children that were not described as VC or NQSC. The sum of VC and NQSC relationships with other kin were similar. Lastly, residents primarily described their relationships with non-kin as NQSC and the magnitude of the difference was moderate.

1.3 How long are residents' relationships with close and important people?

Socioemotional selectivity theory suggests that the duration of VC relationships tends to be longer than NQSC relationships (Lang & Carstensen, 1994, 2002; Lang et al., 1998). The data in this study support this supposition. VC relationships had a mean of 41.96 ($sd = 16.88$) and median of 43.42 ($ICQ = 22.09$). NQSC relationships had a mean of 29.63 ($sd = 21.71$) and median of 30.50 ($IQR = 39.60$). VC relationships were significantly longer than NQSC relationships but the magnitude of the difference was small.

1.4 What is the proximity between residents and close and important people?

Most of the residents were distanced from people with whom they had VC and NQSC relationships. The proportions of residents that reported VC and NQSC relationships with one or more people who worked or lived at the nursing home were 15% and 30% respectively. The sum of VC relationships in the nursing home was significantly less than the sum of NQSC relationships and the magnitude of the difference

was moderate. Within VC and NQSC relationships, the proportion with staff/family and with other residents appeared to be similar.

Research Question 2

Relationships appear to regulate emotions (Charles & Carstensen, 2007) through two mechanisms: they are a source of emotional social support or emotionally meaningful (Fung & Carstensen, 2004). When goals and perceived time left are constrained, as they are among older adults with disabilities, people seek both types of relationships. The relative proportion of the types is unknown but Fung and Carstensen suggest that relationships which provide emotional social support and are emotionally meaningful may be equally represented. In this study, close and important relationships were measured using the SCQ, people who provide emotional social support was measured using the SSQ6, and the individuals identified in both instruments were compared to one another. Of those who provided emotional social support, the vast majority of the relationships were described as VC. NQSC and other relationships were a distant second and third respectively. The magnitude of the difference between VC and NQSC as well as VC and other relationships was very large. The magnitude of the difference between NQSC and other relationships was moderate. In sum, the relationships that provided the most emotional social support were described as VC and to a lesser degree, NQSC. Very few other relationships provided emotional social support.

Research Question 3

3.1 How often do residents attend recreation groups?

The proportion of groups attended each week had a mean of 28% ($sd = 22\%$) and median of 29% ($IQR = 34\%$). In this study, examining the average rate of group participation was not an ideal measure because, in addition to the sum and quality of staff, the number of activities offered at each nursing home varied. This point is highlighted in a study by Voelkl, Fries, and Galecki (1995) who examined participation rates in 89 nursing homes and noted that facility explained 24% of the variance in activity participation. However, there is a dearth of literature on participation rates of cognitively intact nursing home residents so the figure is of interest. In general, the respondents participate in a high proportion of groups offered during the week ($Mdn = 29\%$, $IQR = 34\%$). These results are inconsistent with one study which suggested that participation in recreation groups among residents who are cognitively intact or borderline is in the “low to moderate” range on a standardized variable of participation in recreation groups (Voelkl et al., 1995, p. 49). One explanation for the contradiction between the studies may be the recruitment strategy. While this study used a voluntary sample and required a substantial commitment from its participants, the other was based on medical records. The literature suggests that residents’ cognitive ability and participation rates may have a curvilinear relationship with one another. Residents with high and low levels of cognition may have lower participation rates than those with moderate levels of cognition (Madori, 2004; Voelke et al., 1995). This relationship should be clarified in future research.

3.2 Do residents interact with close and important people at the groups?

A primary or secondary rationale for providing recreation services to groups of people is that high rates of interaction are thought to facilitate the development of meaningful friendships among residents and that the relationships may reduce feelings of loneliness and depression. In this study, there was very little evidence to support this supposition. After excluding VC and NQSC relationships which predated admission to the nursing home, residents rarely reported these relationships with other residents. In regard to VC relationships, only four residents each had one and one resident had two. Therefore, only 8% of residents appeared to develop one or more VC friendships with other residents in the nursing home. In regard to NQSC relationships, only six residents each had one and two residents each had two. Therefore, only 12% of residents appeared to develop one or more NQSC relationships with other residents in the nursing home. In both cases, the development of these few relationships may or may not have been associated with participation in recreation groups. Informal interaction among roommates may have explained the formation of one VC and one NQSC relationship.

One variable which may explain this trend is the short period of time residents spend with one another in comparison to the typical length of VC and NQSC relationships. The length of tenure was significantly shorter than the length of VC and NQSC relationships. The magnitudes of both differences were exceptionally large. To explore this question further, the proportion of recreation groups at which residents interacted with people with whom they had VC, NQSC, and other relationships was examined. At groups, residents were most likely to interact with people with whom they had NQSC relationships. Contact with people with whom residents had other and VC

relationships were a very distant second and third respectively. The results are consistent with the literature, which suggests that some residents appear to develop meaningful relationships (Carpenter, 2002; Fessman & Lester, 2000; Kiely, Simon, Jones, & Morris, 2000) but contact between residents is often superficial (Gutheil, 1991; McGuinn & Mosher-Ashley, 2000; Powers, 1996). It is important to note that, in this study, the type of relationships that residents tended to develop with one another (NQSC) was not the type that provided social emotional support (VC). These findings suggest that the formation of relationships among residents is unlikely to be an effective strategy for reducing feelings of loneliness and depression.

Relationships with staff appeared to occur almost as often as relationships with other residents. After excluding VC and NQSC relationships which predated admission to the nursing home, 5 residents reported the development of one or more VC and 15 residents reported the development of one or more NQSC relationships with staff.

Research Question 4

The literature and socioemotional selectivity theory suggest that several variables are likely to have relationships with the proportion of recreation groups attended by residents. The literature suggests that attendance is highest among people who are younger, female, and have more financial resources (Agahi, Ahacic, & Parker, 2006; Iso-Ahola, Jackson, & Dunn, 1994; Strain, Grabusic, Searle, & Dunn, 2002). Additionally, people with more education participate in more diverse activities so their participation may be higher. The results tenuously contradicted the hypothesis pertaining to age. Perhaps younger residents were less likely to participate in recreation groups because they tended to be populated by older adults (Winkler, Farnworth, & Sloan, 2006). While

a relationship may not exist, the unexpected findings related to gender, financial and educational status may be related to several confounding variables. Residents' motivation for attending groups was not assessed. If the primary motivation was "killing time" (Bocksnick & Hall, 1994, p. 1; Pruchno & Rose, 2002), rather than social interaction (Kelly, 1993; Mannell & Kleiber, 1997), gender related social interaction patterns may have been less influential or irrelevant. A review of the recreation groups provided by the nursing homes revealed that most were free or low cost and traditional. Consequently, residents' financial and educational status was unlikely to be influential.

Socioemotional selectivity theory suggests that attendance may be highest among people who have more satisfaction with social contacts in groups and less limited time left but would be unrelated to the sum of fewer VC and NQSC family/friends. The results strongly support the hypothesis pertaining to satisfaction with social contacts in groups. While a relationship may not exist, the unexpected finding pertaining to limited time left may be related to the representation of the construct by the item. As expected, the sum of VC and NQSC family/friends was unrelated to participation. While staff may take the size of residents' social networks into consideration when developing and providing programs (Carstensen, 1991; John, 1996; McGuinn & Mosher-Ashley, 2000), it did not appear to influence attendance in this study. Therefore, justifying the inclusion of residents in recreation groups based on the size of their close social networks may be erroneous. When the two significant predictors were compared, the variable associated with socioemotional selectivity theory, satisfaction with social contacts in groups, appeared to be very influential while the demographic variable, age, was only minimally so. The theory appears to enhance the prediction of participation in recreation groups

substantially. However, using this information to increase group attendance should be done with care. In general, recreation groups are repeatedly attended by the same small set of residents (Buettner & Fitzsimmons, 2003) and their therapeutic value is questionable. Merely focusing on residents that have high rates of satisfaction with one another is likely to compound the problem. Instead, groups that take residents' needs, interest, and skill level (Kolanowski, Litaker, & Buettner, 2005) as well as satisfaction with social contacts into consideration are likely to be most effective.

Research Question 5

The results from this study were consistent and inconsistent with ones from a study on nursing home policies and procedures conducted by Friedemann, Montgomery, Maiberger, and Smith (1997). In both studies, the nursing home staff reported similar levels of family involvement. Friedemann and colleagues concluded that 82% of nursing homes "encouraged" families to interact with residents in recreation activities, 60% encourage private visits, 54% encouraged meals, and 36% encourage visits 24 hours a day (p. 531). In this study, 89% of nursing homes encouraged family/friends to interact with residents in recreation groups, 89% encouraged private visits, 100% encouraged private meals, 88% encouraged meals in the dining room, and 56% encouraged visits 24 hours a day.

While the results from the nursing home staff were similar, family members in this study appeared to report greater access to residents than in the study conducted by Friedemann and colleagues (1997). The latter study concluded that 14% and 16% of family members were encouraged to participate in "activities/diversions" and "entertainment/simulation" respectively in nursing homes with the least family oriented

policies (p 535). In nursing homes with the most family oriented policies, 19% and 25% of family members were encouraged to participate in “activities/diversions” and “entertainment/simulation” respectively. In this study, 33% or more of family/friends indicated that they were permitted to engage in the various recreation activities all of the time. Moreover, 70% or more of family/friends reported that they were permitted to participate in 7 of the 11 recreation activities all the time. These results suggest that family/friends have much greater access to nursing home residents than previously reported. Perhaps the recent emphasis on improving communication between families and nursing home staff has begun to have a positive effect (Gaugler, 2005).

A comparison of nursing home staff and family/friends’ interpretation of policies which shape their interaction with residents indicates some incongruity. In general, family/friends appeared to underestimate their permission to engage in most forms of interaction including: private visits, pet visits, private parties, meals in the dining room, private meals, attending recreation groups, public outings, and overnight outings. An examination of the missing data indicated family/friends were not aware of the policies and procedures pertaining to their involvement in pet visit, meals in the dining room, private meals, recreation groups, public outings, and overnight outings. Interaction between residents and family/friends may be enhanced if these policies and procedures are clarified.

Research Question 6

Residents

6.1 Do residents express a desire for private activities as socioemotional selectivity theory suggests?

To begin to answer this question, residents' interest in several related recreation activities; visits, meals, and outings, were compared. As socioemotional selectivity theory suggests, the results of all analyses indicated that residents demonstrated a preference for privacy. The magnitude of the difference in each comparison was moderate to strong.

6.2 Are there types of recreation activities?

To reduce the data, a series of exploratory factor analyses were run on residents' recreation interest. The final analysis suggested three latent constructs; Outings/Social, Nontraditional/Private, and In-house/Private, which had strong to moderate internal consistency. Repeated measures and Friedman's ANOVAs indicated that there was a significant difference among the three subscales. In general, residents were most interested in In-house/Private recreation activities followed by Outings/Social and Nontraditional/Private activities respectively. Per socioemotional selectivity theory, In-house/Private activities were favored over Outings/Social but the difference was not statistically significant. In contrast to socioemotional selectivity theory, Nontraditional/Private activities, despite emphasizing privacy, were less attractive than the other two types by a significant margin and the magnitude of the differences were moderate. However, replacing the missing data appeared to alter the relationship between Nontraditional/Private and Outings/Social activities such that there was not a

significant difference between them in the data set that included missing values. The difference between them appears to border on significance. While privacy appears to be an influential factor in residents' recreation interest, the familiarity of the activity appears to be very influential and may be even more important. This is consistent with studies which suggest that the desire for novelty in recreation activities appears to diminish in later life (Iso-Ahola, Jackson, & Dunn, 1994).

6.3 Which residents are interested in each type of recreation activity?

Bivariate correlations and regressions were used to identify which residents were interested in the three types of recreation activities. As before, three regression models were used. Model one included demographic variables: (a) age, (b) gender, (c) education, and (d) socioeconomic status (Agahi, Ahacic, & Parker, 2006; Iso-Ahola, Jackson, & Dunn, 1994; Strain, Grabusic, Searle, & Dunn, 2002). Model two included variables associated with socioemotional selectivity theory: (a) satisfaction with social contacts in groups, (b) limited time left, and (c) closeness (Lang & Carstensen, 1994, 2002; Lang et al., 1998). Model three included significant or near significant variables from models one and two.

6.3a Which residents are interested in Outings/Social activities?

In model one, it was hypothesized that interest in Outings/Social recreation activities would be highest among people who were younger, female, and did not use Medicaid. Additionally, interest in Outings/Social recreation activities would be unrelated to education. The results tenuously supported the hypotheses pertaining to age and education but not gender and financial status. While the variables may be unrelated, the unexpected findings may be due to: (a) a strong desire for outings (Buettner &

Fitzsimmons, 2003) which may override gender related patterns of social interaction and (b) reliance on family/friends to pay for the activity making residents' financial status irrelevant.

In model two, it was hypothesized that interest in Outings/Social recreation activities would be highest among people who had higher rates of satisfaction with social contacts, less limited time left, and more closeness. The results strongly supported the hypothesis pertaining to satisfaction with social contacts in groups, moderately supported the hypothesis pertaining to limited time left, but did not support the hypothesis pertaining to closeness. While the variables may be unrelated, the unexpected finding related to closeness may be due to the modification of the score. Lang and colleges (1998) noted that the frequency of VC and NQSC relationships did not vary much but the frequency of other relationships did. Perhaps by omitting a third category, the sensitivity of the closeness score was compromised. An alternate explanation may be that closeness is "less relevant when a spouse or an adult child is available" (Lang et al., 1998, p. P29). While most residents in this study were not married, two thirds had children.

In model three, the significant predictors from model one and two were combined. Limited time left, which had previously been significant, was slightly non-significant. However, further analysis using the data set in which the missing values were not replaced indicated that limited time left was significant in models two and three. In sum, this variable appears to border on significance. Predicting interest in Outings/Social activities was primarily attributable to the variables associated with socioemotional selectivity theory, satisfaction with social contacts in groups and limited time left, but not

the demographic variable age. The theory appeared to enhance the prediction of interest in Outings/Social activities substantially.

6.3b Which residents are interested in In-house/Private activities?

In model one, it was hypothesized that interest in in-house/private recreation activities would be highest among people who were older, female, and used Medicaid. Additionally, interest in Outings/Social recreation activities would be unrelated to education. The results moderately contradicted the hypothesis pertaining to age, moderately supported the hypothesis pertaining to gender, and did not support the hypothesis pertaining to financial status. The unexpected finding related to age may be due to younger residents' aversion to recreation groups which tend to be populated by older adults (Winkler, Farnworth, & Sloan, 2006). The unexpected finding related to financial status may be due to reliance on family/friends to pay for the activity making residents' financial status irrelevant. As expected, education was unrelated to interest.

In model two, it was hypothesized that interest in In-house/Private recreation activities would be highest among people who had lower rates of satisfaction with social contacts in groups, more limited time left, and more closeness. The results tenuously contradicted the hypothesis pertaining to satisfaction with social contacts in groups and did not support the remaining hypotheses. Residents may experience an overwhelming desire for privacy regardless of the degree of satisfaction with social contacts in groups. While the remaining variables may not be related, the unexpected findings may be due to: (a) the representation of the limited time left construct by the item, and (b) the modification or relevance of the closeness score.

In model three, the significant predictors from models one and two were combined. The influence of the demographic variables appeared to predict the majority of the interest in In-house/Private activities. However, the influence of: (a) age was moderate but in the unexpected direction and (b) gender was slight and in the expected direction. The influence of the variable associated with socioemotional selectivity theory, satisfaction with social contacts in groups, appeared to be slight and in the unexpected direction. Socioemotional selectivity theory did not appear to enhance the prediction of interest in In-house/Private recreation.

6.3c Which residents are interested in Nontraditional/Private recreation activities?

In model one, it was hypothesized that interest in Nontraditional/Private recreation activities would be highest among people who were younger, female, had more education, and did not use Medicaid. The results moderately supported the hypothesis pertaining to age but not pertaining to gender, education, or financial status. Two of the Nontraditional/Private activities, e-mail and webcam, were technology based. Perhaps the use of technology, which is primarily associated with men (Imhof, Vollmeyer & Beierlein, 2007), masked the propensity of women to socialize. However, the results from the data set in which the missing values were not replaced were fairly consistent with the hypotheses. In addition to substantiating the findings pertaining to age, the hypothesis pertaining to education was tenuously supported. The conservative approach to replacing the missing data appears to account for the difference between the data sets. As for Medicaid use, residents' reliance on family/friends to pay for the activity may make their financial status irrelevant.

In model two, it was hypothesized that interest in Nontraditional/Private recreation activities would be highest among people who had lower rates of satisfaction with social contacts in groups, more limited time left, and more closeness. The results suggested that satisfaction with social contacts in groups, limited time left, and closeness were not significant. While the variables may be unrelated, the unexpected findings may be due to: (a) an overwhelming desire for privacy regardless of the degree of satisfaction with social contacts in groups, (b) the representation of the limited time left construct by the item, and (c) the modification or relevance of the closeness score. Socioemotional selectivity theory did not appear to clarify interest in Nontraditional/Private recreation activities beyond the demographic variables.

Family/Friends

6.4 Do family/friends express a desire for private activities as socioemotional selectivity theory suggests?

Socioemotional selectivity theory suggests that family/friends will be more interested in activities which afford privacy than those that do not. Family/friends interest in public and private versions of visits, meals, parties, and outings were compared. Aside from one exception, family/friends demonstrated a preference for private recreation activities. The magnitudes of the significant differences were strong.

6.5 Which family/friends are interested in each activity?

Family/friends interest in various forms of communication with residents appeared to have a relationship with health limitations and transportation difficulties. Their interest in socializing with residents at the nursing home appeared to be influenced by a number of factors including distance from the nursing home, health, ease of

transportation, work status, sum of dependents, and age. Family/friends' interest in going on various types of outings with residents appeared to have an important relationship with sum of dependents and, to lesser degree, retirement status and age.

In addition to recreation interests, all of the family/friends were asked if they would like to receive information that may enhance their interaction with residents. Interest in receiving a recreation calendar had a significant positive correlation with family/friends' education. Interest in receiving information to improve the quality of contact with residents had a significant negative correlation with ease of transportation.

6.6 What recreation interests do residents and family/friends share?

Residents' and family/friends' interests in individual activities were compared. There were some differences between them (see Figures I and II). Residents were significantly more interested in communicating by webcam, public visits, public outings, and overnight outings than family/friends. However, residents were significantly less interested in private parties than family/friends. Most of the residents were distanced from people with whom they had VC and NQSC relationships.

Summary and Implications for Practice

Residents tended to have four VC and four NQSC relationships. They primarily described their relationships with children as VC and non-kin as NQSC. Per socioemotional selectivity theory, VC relationships were significantly longer than NQSC relationships. While the literature on the mechanism of emotion regulation among older adults is scarce, in this study, VC relationships were associated with a high degree of emotional social support but very few NQSC and other relationships were.

At recreation groups, residents tended to interact with people with whom they had NQSC relationships. Since NQSC relationships were not associated with providing emotional social support, justifying the provision of programs to groups of residents as a way to reduce feelings of loneliness and depression may be erroneous. If recreation providers wish to facilitate residents' emotional social support, the results from this study suggest that they should identify the people with whom residents have VC relationships and facilitate their interaction. Specifically, programming should include spouses and children. A comparison of like recreation activities suggested that, in accordance with socioemotional selectivity theory, residents and close family/friends preferred to interact with one another privately. Consequently, not only should programming focus on the relationships between residents and close family/friends but, in most cases, other residents should be excluded. The forms of interaction that residents were most interested in were traditional activities such as visits in private spaces and outings. The forms of interaction that family/friends were most interested in were visits in private spaces and private parties at the nursing home. Facilitating such activities through orientation, training, and scheduling may promote the important relationships that residents and their close family/friends share. In so doing, residents' feelings of isolation and depression, as well as close family/friends' feelings of role ambiguity and stress, may be reduced.

In general, the residents in this study participated in a high proportion of groups per week. One variable associated with socioemotional selectivity theory, satisfaction with social contacts in groups, appeared to be very influential in predicting group attendance. Interest in various activities aggregated into three factors: (a) Outings/Social,

(b) In-house/Private, and (c) Nontraditional/Private. Satisfaction with social contacts in groups appeared to enhance the prediction of interest in Outings/Social activities substantially. It did not appear to enhance the prediction of interest in In-house/Private or Nontraditional/Private recreation activities beyond known demographic variables.

As noted in the literature, nursing home staff reported policies and procedures that facilitated interaction between residents and close family/friends. However, family/friends reported greater freedom to interact with residents than previously reported in the literature. This trend is likely to have a favorable impact on the important relationships that residents and family/friends share.

This study was limited in a number of ways. First, it did not include people with dementia (MMSE score < 24). Second, the sample size of residents and of close family/friends were moderate and small respectively. Third, the selection of respondents was not random. In addition to residents' self-selection, the selection of family/friends was constrained by residents. Fourth, the demographic profile of residents and family/friends limits the generalizability of the findings. Fifth, the data are nested by nursing home but in numbers which prohibit analysis by location. Thus the results do not take facility specific characteristics, which may be very influential, into account. Sixth, several items were altered or constructed from the literature and their psychometric properties are undetermined. Seventh, since this study uses a cross-sectional design, age and cohort effects may be confounded.

Implications for Future Research

Future research may address several of these limitations, including cognitive status, randomness, and nested data, and examine the degree to which recreation

programming may improve the emotional well-being of residents and close family/friends. The Alzheimer's Association (2008) wishes to develop interventions intended to translate knowledge into practice within the social and behavioral domains of health. Specifically, they wish to address the following question: “what interventions can improve communication among family caregivers, persons with dementia, and their health and long term care providers, and have a positive effect on care and outcomes?” (p. 7).

An experimental study could be developed to evaluate the effectiveness of recreation programs that promote interaction between residents and close family/friends. Approximately 70 dyads, including a resident with mild dementia and close family/friend, could be recruited over a period of one year from a single nursing home and assigned to control and treatment groups via a random permuted blocks design. The control group would be assessed at time one and three and receive usual care; in which family/friends informally learn about available recreation opportunities. The treatment group would be assessed at time one and three and receive the intervention. The intervention would emphasize education and scheduling of various private activities including in-person and internet based visits, meals, parties, and outings. The initial assessment and educational session would take approximately 60 minutes to complete and occur within one week of admission to the facility. There would be two follow-up sessions to reinforce learning and reevaluate clients' well-being which would take approximately 30 to 60 minutes to complete and occur two and four weeks after admission.

At time one, residents' recreation interests, cognitive health (MMSE; Folstein, Folstein, & McHugh, 1975), physical health (2-Minute Walk Test; Kosack & Smith, 2005), demographic variables (age, gender, very close family/friends, education, socioeconomic status, and cultural/racial background), loneliness (emotional subscale from the de Jong Gierveld Loneliness Scale; de Jong Gierveld & van Tilburg, 1999) and depression (15-item Geriatric Depression Scale; Yesavage et al., 1983) would be assessed. At time three, residents' cognitive health, physical health, loneliness and depression would be assessed. At time one, family/friends' recreation interests, demographic variables (age, gender, socioeconomic status, and cultural/racial background), stresses associated with the institution (Nursing Home Hassles Scale; Stephens, Ogrocki & Kinney, 1991), stresses associated with caregiving (Patient Hassles Scale; Kinney & Stephens, 1989), and caregiver burnout (Burnout Measure; Pines, Aronson & Kafry, 1981) would be assessed. At time three, family/friends' stress associated with the institution, stress associated with caregiving, and burnout would be assessed. The analysis would examine differences among control and treatment groups as well as differences across time. The primary dependent variables would be loneliness and depression in residents and stress and burnout in close family/friends.

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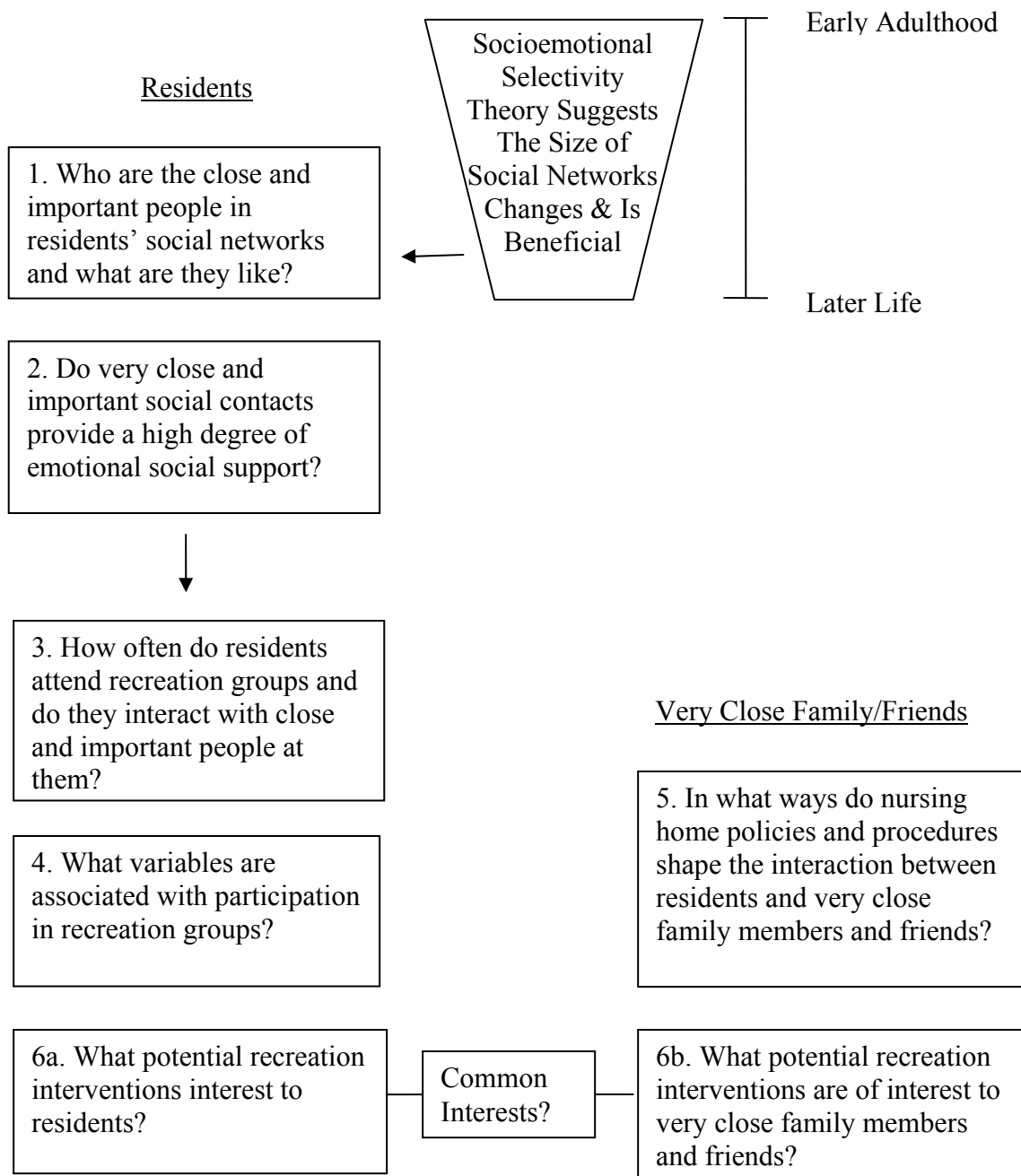
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Appendix A: Concept Map



Appendix B: Resident Recruitment Packet



Volunteers Needed!



To Help Us Improve Activity/Recreation Programs in Nursing Homes

Faculty and students from Penn State are conducting a research study on the involvement of family members and friends in activity/recreation programs in nursing homes. We would like to interview you and a close family member or friend.

We would like to know.....

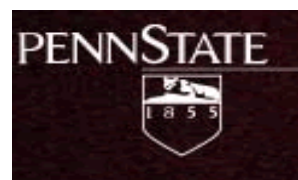
Who are the important people in your life?

Do you attend activity/recreation programs with these people?

How do you and your close family members or friends like to spend your time together?

Both people will receive a token of appreciation to thank them for their valuable contribution. If you would like more information or are willing to participate, please call ...

Sarah Burnett-Wolle (814) 441-1506
or **Return The Enclosed Form**



Funding for this study comes from the Youth, Children and Families Consortium at Penn State and the National Institute on Aging. All information is confidential. Personal information will not be given or sold to anyone including the nursing home staff.

To receive more information on the study to improve activity/recreation programs in nursing homes or to participate, please fill out the following form. When you are done, fold the form and use the sticker to hold it closed. Make sure the address is on the outside and put it in the mail (postage is provided). Researchers will get in touch with you in a week or so.

Thanks!

Your Name: _____

Your Address:

Room Number & Nursing Home _____

Street _____

City _____

State _____ Zip _____

Do you have your own telephone? (check one): Yes ____ No ____

Telephone number where you can be reached: _____

When is the best time to contact you? (check all that apply):

Monday Morning Friday Morning

Monday Afternoon Friday Afternoon

Tuesday Morning Saturday Morning

Tuesday Afternoon Saturday Afternoon

Wednesday Morning Sunday Morning

Wednesday Afternoon Sunday Afternoon

Thursday Morning

Thursday Afternoon

Department of Recreation, Parks, and Tourism Mgt.
The Pennsylvania State University
201 Mateer Building
University Park, PA 16802-1307
Attn. Sarah Burnett-Wolle

Department of Recreation, Parks, and Tourism Mgt.
The Pennsylvania State University
201 Mateer Building
University Park, PA 16802-1307
Attn. Sarah Burnett-Wolle



Volunteers Needed!

To Help Us Improve Activity/Recreation Programs in Nursing Homes

Faculty and students from Penn State are conducting a research study on the involvement of family members and friends in activity/recreation programs in nursing homes. A nursing home resident who you know well is participating in this study. We would like to interview you too.

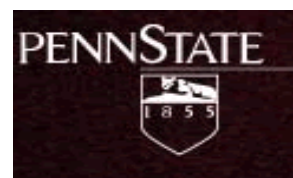
We would like to know.....

How do rules at the nursing home influence your contact with your loved one?

How able and interested are you in participating in various types of activities with your loved one?

You will receive a small token of appreciation for participating in this study. If you would like more information or are willing to participate, please call....

Sarah Burnett-Wolle (814) 441-1506
or **Return The Enclosed Form**



Funding for this study comes from the Youth, Children and Families Consortium at Penn State and the National Institute on Aging. All information is confidential. Personal information will not be given or sold to anyone including nursing home staff.

To receive more information on the study to improve activity/recreation programs in nursing homes or to participate, please fill out the following form. When you are done, fold the form and use the sticker to fasten it closed. Make sure the address is on the outside and put it in the mail (postage is provided). Researchers will get in touch with you in a week or so. Thanks!

Your Name: _____

Your Address:

Street _____

City _____

State _____ Zip _____

Your Telephone Number: _____

When is the best time to contact you? (check all that apply):

- | | | | |
|---------------------|--------------------------|--------------------|--------------------------|
| Monday Morning | <input type="checkbox"/> | Friday Morning | <input type="checkbox"/> |
| Monday Afternoon | <input type="checkbox"/> | Friday Afternoon | <input type="checkbox"/> |
| Monday Evening | <input type="checkbox"/> | Friday Evening | <input type="checkbox"/> |
| Tuesday Morning | <input type="checkbox"/> | Saturday Morning | <input type="checkbox"/> |
| Tuesday Afternoon | <input type="checkbox"/> | Saturday Afternoon | <input type="checkbox"/> |
| Tuesday Evening | <input type="checkbox"/> | Saturday Evening | <input type="checkbox"/> |
| Wednesday Morning | <input type="checkbox"/> | Sunday Morning | <input type="checkbox"/> |
| Wednesday Afternoon | <input type="checkbox"/> | Sunday Afternoon | <input type="checkbox"/> |
| Wednesday Evening | <input type="checkbox"/> | Sunday Evening | <input type="checkbox"/> |
| Thursday Morning | <input type="checkbox"/> | | |
| Thursday Afternoon | <input type="checkbox"/> | | |
| Thursday Evening | <input type="checkbox"/> | | |

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Appendix D: Resident Consent Form

**INFORMED CONSENT FORM FOR
SOCIAL SCIENCE RESEARCH**

The Pennsylvania State University

ORP USE ONLY: IRB#21849 Doc.#2 The Pennsylvania State University Office for Research Protections Approval Date: 12/01/05 T. Kahler Expiration Date: 11/06/06 T. Kahler Social Science Institutional Review Board
--

Title of Project: Integrating Close Family Members and Friends into Nursing Home Recreation Services

Principal Investigator: Geoffrey Godbey, PhD
124 Mateer Building
University Park, PA 16802
(814) 863-8985; g7g@psu.edu

Other Investigator(s): Sarah Burnett-Wolle
201 Mateer Building
University Park, PA 16802
(814) 441-1506; suw118@psu.edu

1. Purpose of the Study: There are three goals of this study.

- a) To explore social relationships between nursing home residents and their close family members and friends as well as among nursing home residents.
- b) To examine the involvement of very close family members and friends in activity/recreation programs at the nursing home.
- c) To identify activities that are of interest to residents and their very close family members and friends.

- 2. Procedures to be Followed:** You will be asked to meet with an interviewer to discuss activity/recreation programs and the people you meet at them. The interviews will take place during 7 days. The first interview will take 30 minutes. The following 6 interviews will take 5 minutes.

We would also like to contact a person who you are very close to and ask him/her some questions. The questions are about rules at the nursing home that shape contact between residents and family members or friends and activities they like to do together.

- 3. Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life. A few of the questions are personal and might cause slight discomfort.
- 4. Benefits:** You might learn more about yourself by participating in this study.

It is hoped that this research will provide a better understanding of relationships between residents and their close family members and friends. It might also provide a better understanding of relationships among nursing home residents. This information could help activity/recreation departments in nursing homes plan better programs. This information might lead to programs that reduce loneliness among residents and relieve stress in their close family members and friends.

- 5. Statement of Confidentiality:** The information you and your family member or friend give will be handled in a confidential manner. The person in charge and his assistants will know your identity. The nursing home staff knows about this study but they will not be told your personal information. Only one person at the nursing home will know your identify because he/she is working as a research assistant on this study. If a close

family member or friend participates in the study, they will also know your identity. The answers you give will not be shared with your family member or friend. Likewise, the answers that your family member or friend give will not be shared with you.

The data will be stored in offices used by the researchers in locked or password protected files. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

- 6. Right to Ask Questions:** You can ask questions about this research. Contact Sarah Burnett-Wolle at (814) 441-1506 with questions. If you have questions about your rights as a research participant, contact The Pennsylvania State University's Office for Research Protections at (814) 865-1775.
- 7. Compensation:** You will receive an easy-grip pen, a box of note cards, and stamps as a token of gratitude for your valuable contribution.
- 8. Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below. You will be given a copy of this signed and dated consent for your records.

Participant Signature

Date

Person Obtaining Consent

Date

Appendix E: Resident Survey

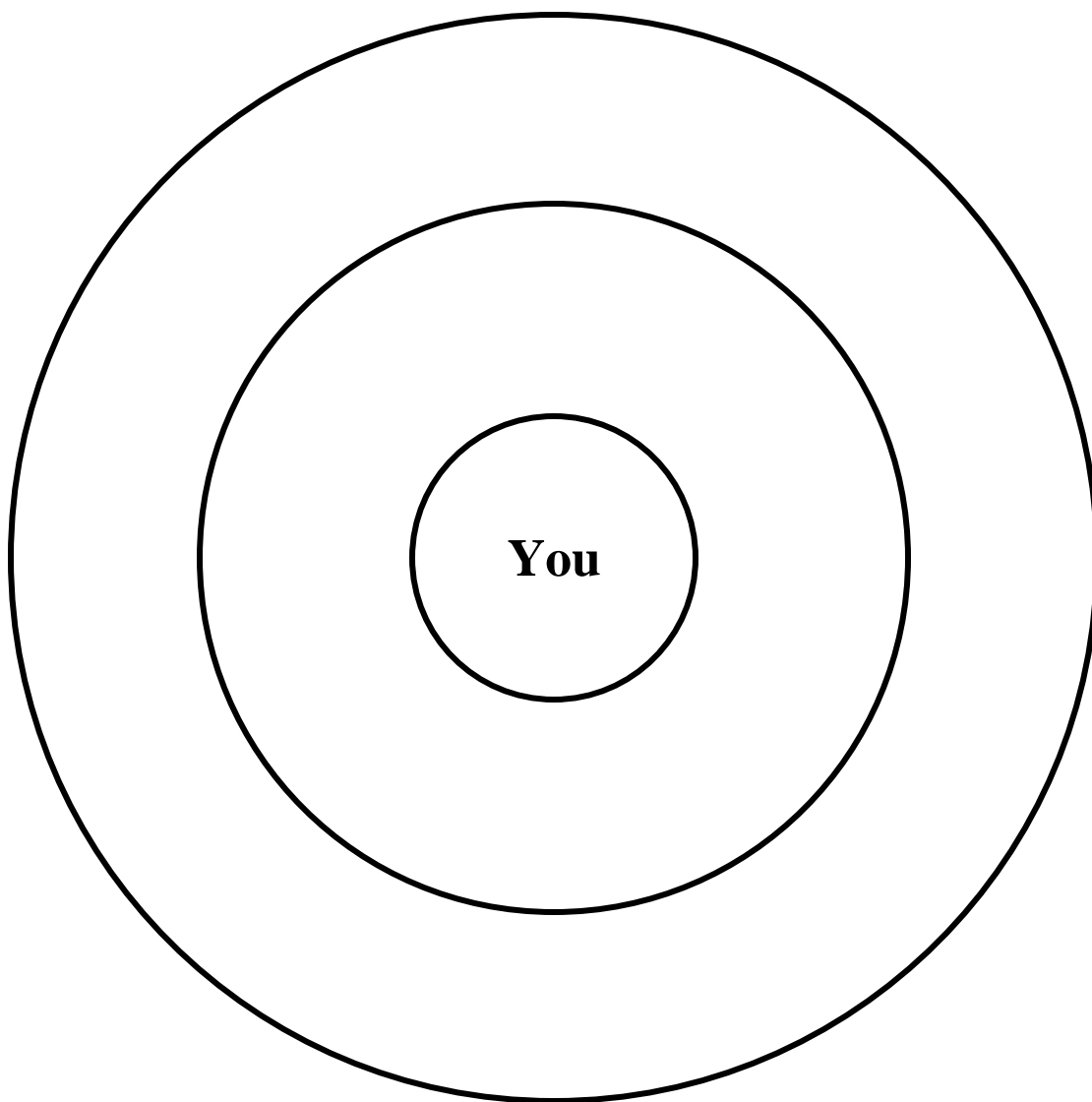
Resident Survey

Respondent # _____ Date _____

Social Convoy Questionnaire (Kahn & Antonucci, 1980, p 280; Lang & Carstensen, 1994, p. 317, 2002, p. 127; Lang et al., 1998, p. P23)

Please tell me the initials of the people who are you are close and important to you.

Interviewer: If the respondent is able, have them write the answers to this section. Point to each part of the diagram when discussing it. List up to 9 people for each category.



1. This is you in the middle, please put the first name or initials of people you feel very close to, so close that it would be hard to imagine life without them

a. _____ b. _____ c. _____
 d. _____ e. _____ f. _____
 g. _____ h. _____ i. _____

2. Please put the first name or initials of people you are not as close to compared to those in the previous group, but who are still very important to you

a. _____ b. _____ c. _____
 d. _____ e. _____ f. _____
 g. _____ h. _____ i. _____

How do you know (*first name or initials*)? How long have you known (*first name or initials*)? Does (*first name or initials*) live or work at the nursing home?

3. Very Close

a. _____ years NH: 1.No 2. Yes 3. Roommate
 b. _____ years NH: 1.No 2. Yes 3. Roommate
 c. _____ years NH: 1.No 2. Yes 3. Roommate
 d. _____ years NH: 1.No 2. Yes 3. Roommate
 e. _____ years NH: 1.No 2. Yes 3. Roommate
 f. _____ years NH: 1.No 2. Yes 3. Roommate
 g. _____ years NH: 1.No 2. Yes 3. Roommate
 h. _____ years NH: 1.No 2. Yes 3. Roommate
 i. _____ years NH: 1.No 2. Yes 3. Roommate

4. Not Quite So Close

a. _____ years NH: 1.No 2. Yes 3. Roommate
 b. _____ years NH: 1.No 2. Yes 3. Roommate
 c. _____ years NH: 1.No 2. Yes 3. Roommate
 d. _____ years NH: 1.No 2. Yes 3. Roommate
 e. _____ years NH: 1.No 2. Yes 3. Roommate
 f. _____ years NH: 1.No 2. Yes 3. Roommate
 g. _____ years NH: 1.No 2. Yes 3. Roommate
 h. _____ years NH: 1.No 2. Yes 3. Roommate
 i. _____ years NH: 1.No 2. Yes 3. Roommate

Emotional Social Support (Sarason, Levine, Basham, & Sarason, 1983, p.129-130; Sarason, Sarason, Shearin, & Pierce, 1987, p. 503)

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. You may give either the person's first name or initials. For the second part, indicate how satisfied you are with the overall support you have. If you have no support for a question, check "No one", but still rate your level of satisfaction.

Interviewer: List up to nine persons per question in part a. When asking part b, present answer choices to the respondent

5a. Whom can you really count on to distract you from your worries when you feel under stress?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

5b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

6a. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

6b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

7a. Who accepts you totally, including both your worst and your best points?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

7b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

8a. Whom can you really count on to care about you, regardless of what is happening to you?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

8b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

9a. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

9b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

10a. Whom can you count on to console you when you are very upset?

No One

i. _____ ii. _____ iii. _____
 iv. _____ v. _____ vi. _____
 vii. _____ viii. _____ ix. _____

10b. How satisfied you are with the overall support you have?

1-----2-----3-----4-----5-----6
 Very Somewhat A Little A Little Somewhat Very
 Dissatisfied Dissatisfied Dissatisfied Satisfied Satisfied Satisfied

Satisfaction with Social Network in Recreation Groups (Beard & Ragheb, 1980, p. 28)

In general, what are your thoughts about the people you meet in group activities offered by the recreation department? Please indicate to what degree these statements are true for you.

11. The group activities allow me to reveal my thoughts, feelings, or physical skills to others.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

12. I have social interaction with others through the group activities.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

13. The group activities have helped me to develop close relationships with others.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

14. I prefer activities in which I am among others in groups.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

15. The people I meet in the group activities are friendly.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

16. I associate with stimulating people in the group activities.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

17. I first met many of my present friends through the group activities.

1-----	2-----	3-----	4-----	5
Almost	Seldom	Sometimes	Often	Almost
Never True	True	True	True	Always True

18. I enjoy making myself useful to others in my free time.

1-----	2-----	3-----	4-----	5
Almost Never True	Seldom True	Sometimes True	Often True	Almost Always True

19. I have a strong sense of belonging toward those with whom I do the group activities.

1-----	2-----	3-----	4-----	5
Almost Never True	Seldom True	Sometimes True	Often True	Almost Always True

20. I respect those with whom I do the group activities.

1-----	2-----	3-----	4-----	5
Almost Never True	Seldom True	Sometimes True	Often True	Almost Always True

Recreation Preferences [Constructed from literature: Acelo (A), 2003; Buettner & Martin (BM), 1995; Dunning (D), 2003; Friedemann, Montgomery, Maiberger & Smith (FMMS), 1997; Lanza (L), 1997, McGuire, Boyd, & Tedrick (MBT), 1999; Mickus & Luz (ML), 2002; Tills (T), 1997; Wright (W), 2000]

The following activities are ways in which you might interact with close family members or friends. Please tell me how interested you are in participating in them. It does not matter if you have done these activities before, just how interested you are in doing them in the future. Assume that staff will provide any needed assistance during the activities.

Interviewer: Present respondent with the picture that illustrates each activity

21. (FMMS; T) Talking on the telephone with very close family and friends

1-----	2-----	3-----	4-----	5
Not Interested	A Little Interested	Somewhat Interested	Very Interested	Extremely Interested

22. (D) Using a computer to exchange letters and photos (email) with very close family and friends

1-----	2-----	3-----	4-----	5
Not Interested	A Little Interested	Somewhat Interested	Very Interested	Extremely Interested

23. (D, ML) Using a TV and telephone or computer to see and talk (web cam) with very close family and friends

1-----	2-----	3-----	4-----	5
Not Interested	A Little Interested	Somewhat Interested	Very Interested	Extremely Interested

24. (FMMS; T) Visiting with very close family and friends in a public space at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

25. (A; FMMS; T; W) Visiting with very close family and friends in a private space at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

26. (FMMS; MBT) Having very close family and friends bring a pet to visit

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

27. (A; FMMS; W) Having private parties, such as birthday or dinners, with very close family and friends at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

28. (FMMS; T; W) Having a meal with very close family and friends in a dining room at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

29. (A; FMMS; T; W) Having a meal with very close family and friends in a private space at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

30. (FMMS; L) Attending recreation groups in the nursing home with very close family and friends

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

31. (FMMS; MBT; T) Going out to lunch or shopping with staff, other residents, and very close family and friends where everyone remains together in a group

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

32. (FMMS; MBT; T) Going out to lunch or shopping with staff, other residents, and very close family and friends but spending time alone with very close family and friends. For example, sitting at a private table in a restaurant

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Interested Interested Interested Interested Interested

33. (FMMS) Going on outings with very close family and friends but without nursing home staff

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Interested Interested Interested Interested Interested

34. (T; W) Going on outings overnight with very close family and friends

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Interested Interested Interested Interested Interested

35. (A; BM; MBT; T) Receiving information or assistance from recreation staff to improve the quality of your contact with very close family and friends (via telephone or correspondence).

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Interested Interested Interested Interested Interested

36. (A; BM; MBT; T) Receiving information or assistance from recreation staff to improve the quality of your visits with very close family and friends

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Interested Interested Interested Interested Interested

Demographics [Constructed from literature: Gerontology Institute & Bronfenbrenner Life Course Center (GI&BLCC), 2001-2002, p. 103; Port (P), 2004; Lang (L, personal communication, November 17, 2005)]

37. (GI&BLCC) What is your gender? 1. Male 2. Female

38. (GI&BLCC) What is your race or ethnicity? (choose one)

1. Caucasian 2. Hispanic 3. African-American 4. Asian 5. Native American
 6. Other _____

39. (GI&BLCC) What is your current marital status?

1. Married 2. Partnered 3. Widowed 4. Divorced 5. Never Been Married

40. (GI&BLCC) How many daughters and sons do you have? _____|_____
 Daughters Sons

41. (GI&BLCC) What is your date of birth? _____|_____
 Month Year

42. (GI&BLCC) What is the highest grade in school that you completed? _____

43. How long have you lived in this nursing home? _____

44. (L) When you moved to this nursing home, how important was it to live near close family members or friends?

1-----2-----3-----4-----5
 Not A Little Somewhat Very Extremely
 Important Important Important Important Important

45. (P) Do you receive Medicare? 0. No 1. Yes

46. (P) Do you receive Medicaid? 0. No 1. Yes

47. (L) I have the feeling that my time is coming to an end.

1-----2-----3-----4-----5
 Almost Seldom Sometimes Often Almost
 Never True True True True Always True

48. (GI&BLCC) Is there anything else you would like to add about the people you interact with or the activities in this nursing home?

The last thing we need is some contact information for the people you identified as very close, so close that it would be hard to imagine life without them in question 15. A person in this group will be selected randomly to fill out the close family member survey. In addition to the other information you have provided, their names, addresses, and phone numbers will remain confidential. Only 3 or 4 people working on this study will ever see them. As we process this survey, your name and your family and friends' names will be replaced by a code to ensure that privacy is maintained. All of the contact information will be held in secure files and absolutely none of it will ever be released or sold.

a. First Name _____ Last Name _____
Address _____
City _____ State _____ Zip _____
Phone number _____

b. First Name _____ Last Name _____
Address _____
City _____ State _____ Zip _____
Phone number _____

c. First Name _____ Last Name _____
Address _____
City _____ State _____ Zip _____
Phone number _____

d. First Name _____ Last Name _____
Address _____
City _____ State _____ Zip _____
Phone number _____

e. First Name _____ Last Name _____
Address _____
City _____ State _____ Zip _____
Phone number _____

You're finished! Thank you very much for participating in our study.

Appendix F: Resident Graphics

Answer Choices for Items 5-10 part b



Very **Somewhat** **A Little** **A Little** **Somewhat** **Very**
Dissatisfied **Dissatisfied** **Dissatisfied** **Satisfied** **Satisfied** **Satisfied**

Answer Choices for Items 11-20 and 47



Answer Choices for Items 21 and 24-36

|-----|-----|-----|-----|
Not A Little Somewhat Very Extremely
Interested Interested Interested Interested Interested

22. Using a computer to exchange letters and pictures (e-mail) with close family and friends.



|-----|-----|-----|-----|
Not A Little Somewhat Very Extremely
Interested Interested Interested Interested Interested

23. Using a TV and telephone or computer to see and talk (web cam) with close family and friends.



(Packet8 Videophone, 2009)

-----	-----	-----	-----	-----
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

Answer Choice for Item 44



Appendix G: Resident Survey Alterations

Original Question	Final Question	Rational & Action
26. Visiting with very close family and friends in another part of the facility such as a cafeteria or garden.	-	Extraneous, Removed
28. Receiving information or assistance from recreation staff to facilitate visits with very close family and friends.	37. Receiving information or assistance from recreation staff to improve the quality of your visits with very close family and friends.	Confessing, Replaced
30. Receiving information or assistance from the recreation staff to facilitate private parties at the nursing home.	37. Receiving information or assistance from recreation staff to improve the quality of your visits with very close family and friends.	Confessing, Replaced
38. Receiving information or assistance from recreation staff to facilitate outings with very close family and friends.	37. Receiving information or assistance from recreation staff to improve the quality of your visits with very close family and friends.	Confessing, Replaced
-	36. Receiving information or assistance from recreation staff to improve the quality of your contact with very close family and friends (via telephone or correspondence)	Added
34. Attending recreation outings, such as going to lunch or shopping, with very close family and friends where everyone remains together in a group	32. Going out to lunch or shopping with staff, other residents, and very close family and friends where everyone remains together in a group	Confessing, Reworded
35. Spending time alone with very close family and friends while on a recreation outings. For example, sitting at your own table in a restaurant)	33. Going out to lunch or shopping with staff, other residents, and very close family and friends but spending time along with very close family and friends. For example, sitting at a private table in a restaurant.	Confessing, Reworded

48. All things considered, how many years do you think you will live?	48. I have the feeling that my time is coming to an end (F. Lang, personal communication, November 17, 2005).	Most responded <i>don't know</i> , Replaced
-	47. Do you receive Medicaid?	Added


Appendix H: Yesterday Interview

Yesterday Interview**Respondent #** _____

Yesterday's Date _____ and Day of the Week _____

Interviewer: Look at the facility's activity/recreation calendar to identify the activities that took place yesterday. If the respondent answers "yes" to question a, ask questions b, c, and d. Repeat for each activity that took place yesterday. When reading question b and c, point to the corresponding parts of the bulls eye diagram.


The activities scheduled for yesterday, (*name day of week, month, day of month*), were (*name all activities*). Please answer the following questions about these activities.

1a. Did you go to _____ (*list first activity*)?0. No 1. Yes 


1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name first activity*)? 0. No 1. Yes

1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name first activity*)?

0. No 1. Yes

If yes to either b or c  1d. Did you go with or plan to meet people any of these people at (*name first activity*)?


0. No 1. Yes

2a. Did you go to _____ (*list second activity*)?0. No 1. Yes 

1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name second activity*)? 0. No 1. Yes


1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name second activity*)?

0. No 1. Yes

If yes to either b or c  1d. Did you go with or plan to meet people any of these people at (*name second activity*)?

0. No 1. Yes

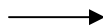
3a. Did you go to _____ (*list third activity*)?

0. No 1. Yes 

1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name third activity*)? 0. No 1. Yes


1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name third activity*)?

0. No 1. Yes

If yes to either b or c  1d. Did you go with or plan to meet people any of these people at (*name third activity*)?

0. No 1. Yes

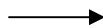
4a. Did you go to _____ (*list fourth activity*)?

0. No 1. Yes 

1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name fourth activity*)? 0. No 1. Yes


1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name fourth activity*)?

0. No 1. Yes

If yes to either b or c  1d. Did you go with or plan to meet people any of these people at (*name fourth activity*)?

0. No 1. Yes


5a. Did you go to _____ (*list fifth activity*)?

0. No 1. Yes 

1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name fifth activity*)? 0. No 1. Yes

1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name fifth activity*)?

0. No 1. Yes

If yes to either b or c  1d. Did you go with or plan to meet people any of these people at (*name fifth activity*)?

0. No 1. Yes

6a. Did you go to _____ (*list sixth activity*)?
0. No 1. Yes



1b. Were people you feel very close to, so close that it would be hard to imagine life without them at (*name sixth activity*)? 0. No 1. Yes

1c. Were people who you feel less close to compared to those in the previous group but who are still very important to you at (*name sixth activity*)? 0. No 1. Yes

If yes to either b or c → 1d. Did you go with or plan to meet people any of these people at (*name sixth activity*)? 0. No 1. Yes

Appendix I: Family/Friend Consent Form

Important Information About This Research Study

Title of Project: Integrating Close Family Members and Friends into Nursing Home Recreation Services

Principal Investigator: Geoffrey Godbey, PhD
124 Mateer Building
University Park, PA 16802
(814) 863-8985; g7g@psu.edu

Other Investigator: Sarah Burnett-Wolle
201 Mateer Building
University Park, PA 16802
(814) 441-1506; suw118@psu.edu

1. Purpose of the Study: There are three goals of this study.

- a) To explore social relationships between nursing home residents and their close family members and friends as well as among nursing home residents.
- b) To examine the involvement of very close family members and friends in activity/recreation programs at the nursing home.
- c) To identify activities that are of interest to residents and their very close family members and friends.

2. Procedures to be followed: You will be asked to complete a telephone interview about rules at the nursing home that shape contact between you and your loved one and activities the two of

you might like to do together. It will take approximately 20 minutes to complete the telephone interview.

- 3. Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life. Some of the questions are personal and might cause slight discomfort.
- 4. Benefits:** You might learn more about yourself by participating in this study. You might also learn about programs that may improve your relationship with your loved one.

It is hoped that this research will provide a better understanding of relationships between residents and their close family members and friends. This information could help activity/ recreation departments in nursing homes plan better programs. This information might lead to programs that reduce loneliness among residents and relieve stress in their close family members and friends.

- 5. Statement of Confidentiality:** The information that you and your loved one give will be handled in a confidential manner. Only the person in charge and his assistants will know your identity or have access to the information that you give. Your answers will not be shared with your loved one. Likewise, the answers your loved one gave will not be shared with you. The nursing home staff know about this study but they will not be given the information that you and your loved one provide.

The data will be stored in offices used by the researchers in locked or password protected files. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

- 6. Right to Ask Questions:** You can ask questions about this research. Contact Sarah Burnett-Wolle at (814) 441-1506 with questions. If you have questions about your rights as a research participant, contact The Pennsylvania State University's Office for Research Protections at (814) 865-1775.
- 7. Compensation:** You will receive an easy-grip pen, a box of note cards, and stamps as a token of gratitude for your valuable contribution.
- 8. Voluntary Participation:** Your decision to be in this research study is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

Prior to beginning the telephone interview you will be asked if you agree to take part in the study. You must be 18 years of age or older to participate in it.

Appendix J: Family/Friend Survey

Close Family/Friend Survey

Respondent # _____

Date _____

Nursing Home Rules [Constructed from literature: Acelo (A), 2003; Buettner & Martin (BM), 1995; Friedemann, Montgomery, Maiberger & Smith (FMMS), 1997; Lanza (L), 1997, McGuire, Boyd, & Tedrick (MBT), 1999; Tills (T), 1997; Wright (W), 2000]

Please tell me about visiting with your loved one. How do nursing home rules or routines shape your contact with him/her?

1. (FMMS; T) I am permitted to speak with my loved one by telephone when I want to

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

2. (FMMS; T) I am permitted to visit my loved one when I want to

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

3. (A; FMMS; T; W) I can visit with my loved one in privacy.

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

4. (FMMS; MBT) I am permitted to bring a pet to visit with my loved one.

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

5. (A; FMMS; W) I am permitted to have private parties, such as birthday or dinners, for my loved one

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

6. (FMMS; T; W) I am permitted to have a meal with my loved one in the dining room.

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

7. (FMMS; T; W) I am permitted to have a meal with my loved one in privacy.

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

8. (L; T) I receive a recreation calendar

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

9. (FMMS; L) I am permitted to attend recreation groups with my loved one

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

10. (FMMS; MBT; T) I am permitted to attend recreation outings such as going to lunch or shopping.

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

11. (FMMS) I am permitted to take my loved one on outings without nursing home staff

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

12. (T; W) I am permitted to take my loved one on outings overnight

1-----2-----3-----4-----5
All The Time Often Sometimes Rarely Never

Ability To Interact With Residents

The following questions refer to ways in which you might interact with your loved one. How easy are the following forms of contact for you?

13. I have access to a telephone and can use it most of the time 0. No 1. Yes

14. I have access to the internet and can use it most of the time 0. No 1. Yes

15. I can get to the nursing home most of the time 0. No 1. Yes

16. I am capable of taking my loved one on an outing most of the time 0. No 1. Yes

Recreation Preferences [Constructed from literature: Acelo (A), 2003; Buettner & Martin (BM), 1995; Dunning (D), 2003; Friedemann, Montgomery, Maiberger & Smith (FMMS), 1997; Lanza (L), 1997, McGuire, Boyd, & Tedrick (MBT), 1999; Mickus & Luz (ML), 2002; Tills (T), 1997; Wright (W), 2000]

How interested are you in the following activities? It does not matter if these ideas are new to you or offered at your nursing home. I still would like to know how interested you are in them. Assume that recreation staff would provide needed assistance.

17. (FMMS; T) Talking on the telephone with my loved one

1-----2-----3-----4-----5
Not A Little Somewhat Very Extremely
Interested Interested Interested Interested Interested

18. (D) Using a computer to exchange letters and photos (e-mail) with my loved one

1-----2-----3-----4-----5
Not A Little Somewhat Very Extremely
Interested Interested Interested Interested Interested

19. (D, ML) Using a TV and telephone or computer to see and talk (web cam) with my loved one

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

20. (FMMS; T) Visiting my loved one in a public space at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

21. (A; FMMS; T; W) Visiting with my loved one in a private space at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

22. (FMMS; MBT) Bringing a pet to visit with my loved one.

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

23. (A; FMMS; W) Having public parties, such as birthdays or dinners, with other residents and my loved one

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

24. (A; FMMS; W) Having private parties, such as birthdays or dinners, with my loved one at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

25. (FMMS; T; W) Having a meal with my loved one in a dining room at the nursing home

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

26. (A; FMMS; T; W) Having a meal with my loved one in a private space at the nursing home.

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

27. (L; T) Receiving a recreation calendar

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

28. (FMMS; L) Attending recreation groups at the nursing home with my loved one

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

29. (FMMS; MBT; T) Going to lunch or shopping, with staff, other residents, and my loved one where everyone remains together in a group

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

30. (A; FMMS; MBT; T) Going to lunch or shopping, with staff, other residents, and my loved one but spending time alone with my loved one. For example, sitting at a private table in a restaurant.

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

31. (FMMS) Taking my loved one on outings without nursing home staff

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

32. (T; W) Taking my loved one on outings overnight

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

33. (A; BM; MBT; T) Receiving information or assistance from recreation staff to improve the quality of my contact with my loved one (via telephone or correspondence)

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

34. (A; BM; MBT; T) Receiving information or assistance from recreation staff to improve the quality of my visits with my loved one

1-----	2-----	3-----	4-----	5
Not	A Little	Somewhat	Very	Extremely
Interested	Interested	Interested	Interested	Interested

Appendix K: Recreation Director Survey

In general, how many residents do you have in your nursing home? _____

In general, how many group activities do you offer per week? _____

Recreation Activities and Services Available At Nursing Homes [Constructed from literature: Acelo (A), 2003; Buettner & Martin (BM), 1995; Dunning, 2004; Friedemann, Montgomery, Maiberger & Smith (FMMS), 1997; Lanza (L), 1997, McGuire, Boyd, & Tedrick (MBT), 1999; Mickus & Luz (ML), 2002; Tills (T), 1997; Wright (W), 2000]

Please indicate the extent to which each of the following activities and services are available in your facility

1. (FMMS; T) Residents receive or make telephone calls around the clock

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

2. (D) Residents use a computer to exchange letters and photos (e-mail) with family/friends.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

3. (D, ML) Residents use a computer to see and talk (web cam) with family/friends.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

4. (FMMS; T) Residents receive visitors around the clock

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

5. (A, FMMS; T; W) Private spaces for residents to visit with family/friends at the nursing home.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

6. (MBT; W) Family/friends taking residents to another part of the facility, such as a cafeteria or garden, during visits.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

7. (FMMS; MBT) Bring a pet to visit with residents.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

8. (A; BM; MBT; T) Recreation staff provide information or assistance to residents or family/friends to facilitate visits

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

9. (A; FMMS; W) Private parties for residents, such as birthday parties or dinners, with family/friends at the nursing home

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

10. (A; BM; FMMS; T) Recreation staff provide information or assistance to residents or family/friends to facilitate private parties at the nursing home.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

11. (FMMS; T; W) Family/friends having meals with residents in a dining room at the nursing home

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

12. (A; FMMS; T; W) Family/friends having a meal with residents in a private space at the nursing home

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

13. (L; T) Providing family/friends with a recreation calendar

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

14. (FMMS; L) Family/friend attendance in recreation groups at the nursing home

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

15. (FMMS; MBT; T) Family/friend attendance on recreation outings, such as going to lunch or shopping, with residents where everyone remains together in a group

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

16. (A; FMMS; MBT; T) Residents and their family/friend spending time alone while on recreation outings. For example, sitting at a private table in a restaurant.

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

17. (FMMS) Family/friends taking a resident on outings without nursing home staff

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

18. (T; W) Family/friends taking a resident on an outing overnight

Available And Encouraged	Available At Family/Friend Or Resident Request	Available But Not Encouraged	Not Available Or Allowed
-----------------------------	--	---------------------------------	-----------------------------

19. (A; BM; MBT; T) Recreation staff provide information or assistance to residents or family/friends to facilitate outings

Available
And Encouraged

Available At
Family/Friend Or
Resident Request

Available But
Not Encouraged

Not Available
Or Allowed

You are finished! Thank you very much for participating in our study.

Appendix L: Code Book

Resident's Continuous Variables Before and After Missing Data Addressed

Variable	Before		After		
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Normality
<i>Social Convoys Questionnaire</i>					
Sum of VC Relationships	4.21 (3.00)	4.00 (6.00)	-	-	$D(66) = 0.13, p < .05$
Square Root Transformation*	1.85 (0.89)	2.00 (1.65)	-	-	$D(66) = 0.11, p > .05$
Sum of VC with Spouses	0.12 (0.33)	0.00 (0.00)	-	-	$D(66) = 0.52, p < .05$
Sum of VC with Children	1.47 (1.62)	1.00 (3.00)	-	-	$D(66) = 0.22, p < .05$
Sum of VC with Other Kin	1.83 (2.06)	1.00 (3.00)	-	-	$D(66) = 0.20, p < .05$
Sum of VC with Non Kin	0.79 (1.46)	0.00 (1.00)	-	-	$D(66) = 0.36, p < .05$
Sum of VC with People in NH	0.27 (0.81)	0.00 (0.00)	-	-	$D(66) = 0.48, p < .05$
Sum of NQSC Relationships	3.39 (2.60)	3.00 (3.25)	-	-	$D(66) = 0.13, p < .05$
Sum of NQVC with Children	0.08 (0.36)	0.00 (0.00)	-	-	$D(66) = 0.54, p < .05$
Sum of NQVC with Other Kin	1.53 (2.25)	0.00 (3.00)	-	-	$D(66) = 0.30, p < .05$
Sum of NQVC with Non Kin	1.79 (2.22)	1.00 (3.00)	-	-	$D(66) = 0.21, p < .05$
Sum of NQSC with People in NH	0.73 (1.33)	0.00 (1.00)	-	-	$D(66) = 0.41, p < .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
Sum of VC and NQSC Relationships*	7.61 (3.87)	8.00 (7.00)	-	-	$W(66) = 0.97, p > .05$
Closeness*	1.08 (0.57)	1.06 (0.86)	-	-	$W(66) = 0.97, p > .05$
VC Relationship Length*	41.89 (16.89)	43.42 (22.09)	41.96 (16.88)	43.42 (22.09)	$W(60) = 0.98, p > .05$
NQSC Relationship Length	29.68 (21.71)	30.50 (39.60)	29.63 (21.71)	30.50 (39.60)	$D(53) = 0.13, p < .05$
VC and NQSC Relationship Length*	35.72 (15.22)	34.56 (22.79)	35.72 (15.22)	34.56 (22.79)	$W(65) = 0.97, p > .05$
<i>Emotional Social Support</i>					
Size of Emotional Social Support	1.78 (1.53)	1.33 (1.43)	1.75 (1.52)	1.33 (1.50)	$D(66) = 0.18, p < .05$
+ 1, Log Transformation*	0.40 (0.20)	0.37 (0.26)	0.39 (0.20)	0.37 (0.28)	$W(66) = 0.96, p > .05$
VC Emotional Social Support	1.33 (1.48)	1.00 (1.25)	-	-	$D(66) = 0.20, p < .05$
NQSC Emotional Social Support	0.31 (0.48)	0.00 (0.50)	-	-	$D(66) = 0.29, p < .05$
Other Emotional Social Support	0.10 (0.18)	0.00 (0.17)	-	-	$D(66) = 0.38, p < .05$
Satisfaction with Emotional Social Support	5.42 (0.73)	5.67 (0.83)	5.44 (0.73)	5.67 (0.83)	$D(66) = 0.22, p < .05$
<i>Satisfaction with Social Networks in Recreation Groups</i>					
Satisfaction with Social Contacts in Groups	3.73 (0.89)	3.90 (1.23)	3.74 (0.89)	3.90 (1.15)	$D(66) = 0.19, p < .05$
Reverse Score, Log Transformation*	0.32 (0.03)	0.32(0.24)	0.32 (0.16)	0.32 (0.22)	$W(66) = 0.98, p > .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
<i>Recreation Preferences</i>					
Interest in Talking on Telephone	3.77 (1.22)	4.00 (2.00)	3.77 (1.21)	4.00 (2.00)	$D(66) = 0.21, p < .05$
Interest in E-Mail	2.89 (1.53)	3.00 (3.00)	2.89 (1.51)	3.00 (3.00)	$D(66) = 0.17, p < .05$
Interest in Webcam	3.29 (1.40)	3.00 (2.00)	3.29 (1.39)	3.00 (1.50)	$D(66) = 0.18, p < .05$
Interest in Public Visits	3.46 (1.37)	4.00 (2.00)	3.47 (1.36)	4.00 (2.00)	$D(66) = 0.20, p < .05$
Interest in Private Visits	4.17 (1.15)	5.00 (1.00)	4.18 (1.15)	5.00 (1.00)	$D(66) = 0.31, p < .05$
Interest in Pet Visits	3.11 (1.62)	4.00 (3.25)	3.17 (1.58)	4.00 (3.00)	$D(66) = 0.28, p < .05$
Interest in Private Parties	3.57 (1.29)	4.00 (1.00)	3.59 (1.26)	4.00 (1.00)	$D(66) = 0.31, p < .05$
Interest in Meal in Dining Room	2.95 (1.44)	3.00 (3.00)	2.89 (1.44)	3.00 (3.00)	$D(66) = 0.18, p < .05$
Interest in Private Meal	3.43 (1.44)	4.00 (3.00)	3.41 (1.45)	4.00 (3.00)	$D(66) = 0.25, p < .05$
Interest in Recreation Groups	3.02 (1.43)	3.00 (3.00)	3.02 (1.40)	3.00 (2.25)	$D(66) = 0.21, p < .05$
Interest in Public Outings	3.32 (1.45)	4.00 (2.25)	3.36 (1.41)	4.00 (1.25)	$D(66) = 0.22, p < .05$
Interest in Semi-Private Outings	3.63 (1.42)	4.00 (2.00)	3.65 (1.38)	4.00 (2.00)	$D(66) = 0.25, p < .05$
Interest in Private Outings	4.05 (1.37)	5.00 (1.25)	4.11 (1.35)	5.00 (2.00)	$D(66) = 0.34, p < .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
Interest in Overnight Outings	2.59 (1.73)	2.00 (3.00)	2.56 (1.69)	2.00 (3.00)	$D(66) = 0.29, p < .05$
Outings/Social	3.40 (1.14)	3.60 (1.40)	3.41 (1.09)	3.60 (1.40)	$D(66) = 0.13, p < .05$
Second Power Transformation*	12.78 (6.91)	12.96 (9.80)	12.82 (7.25)	12.96 (9.80)	$D(66) = 0.08, p > .05$
In-house/Private	3.60 (1.01)	4.00 (1.33)	3.59 (1.00)	4.00 (1.33)	$D(66) = 0.17, p < .05$
Third Power Transformation	56.93 (36.46)	64.00 (54.37)	56.21 (35.66)	64.00 (54.37)	$D(66) = 0.14, p < .05$
Nontraditional/Private	3.03 (1.12)	3.00 (2.00)	2.98 (1.10)	2.88 (2.00)	$D(66) = 0.14, p < .05$
<i>Demographics</i>					
Daughters	1.06 (1.21)	1.00 (2.00)	-	-	$D(66) = 0.25, p < .05$
Sons	1.05 (1.06)	1.00 (2.00)	-	-	$D(66) = 0.25, p < .05$
Children	2.11 (1.92)	2.00 (3.00)	-	-	$D(66) = 0.18, p < .05$
Age*	74.21 (13.85)	76.00 (15.75)	-	-	$D(66) = 0.04, p > .05$
Third Power Transformation*	448294.20	438976.00	448294.20	438976.00	$W(66) = 0.99, p > .05$
Education [†]	12.26 (2.82)	12.00 (2.25)	-	-	$D(66) = 0.26, p < .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
Tenure	3.46 (3.30)	2.50 (4.00)	3.46 (3.27)	2.63 (4.00)	$D(66) = 0.22, p < .05$
Log Transformation*	0.34 (0.45)	0.40 (0.70)	0.34 (0.44)	0.42 (0.70)	$W(66) = 0.97, p > .05$
Importance of Living Near Family/Friends	3.88 (1.39)	4.00 (2.00)	3.88 (1.38)	4.00 (2.00)	$D(66) = 0.25, p < .05$
Limited Time Left	3.00 (1.46)	3.00 (2.00)	-	-	$D(66) = 0.15, p < .05$
<i>Yesterday Interviews</i>					
Proportion of Groups Attended	28% (22%)	29% (34%)	28% (22%)	29% (34%)	$D(66) = 0.12, p < .05$
+1, Lot Transformation*	10% (7%)	11% (12%)	10% (7%)	11% (12%)	$D(66) = 0.11, p > .05$
Sum of Groups Attended*	5.30 (4.06)	5.50 (6.00)	5.75 (4.20)	6.00 (7.25)	$D(66) = 0.11, p > .05$
Proportion with VC Family/Friends	25% (31%)	13% (41%)	25% (31%)	11% (39%)	$D(56) = 0.22, p < .05$
Proportion with NQSC Family/Friends	57% (37%)	58% (73%)	56% (38%)	58% (80%)	$D(56) = 0.14, p < .05$
Proportion of Groups Met VC or NQSC	30% (37%)	14% (63%)	30% (37%)	14% (63%)	$D(49) = 0.26, p < .05$

* = Normal Distribution

† = See Residents' Categorical Variables Before and After Missing Data Addressed for Transformed Values

Resident's Categorical Variables Before and After Missing Data Addressed

Variable	Before	After
Sum of VC Proximal to 1+ Person in NH	15%	-
Sum of NQSC Proximal to 1+ Person in NH	30%	-
Gender		
Female	65%	-
Male	35%	-
Race		
White	97%	-
Asian	3%	-
Marital Status		
Widowed	46%	-
Divorced	23%	-
Never Married	15%	-
Married	15%	-
Partnered	2%	-
Spouse (Married and Partnered)	17%	-

Variable	Before	After
Completed 12 th Grade [†]		
Yes	71%	-
No	29%	-
Medicare		
Yes	85%	-
No	11%	-
Medicaid		
Yes	53%	64%
No	47%	36%

[†] = See Residents' Continuous Variables Before and After Missing Data Addressed for Original Values

Family/Friends' Continuous Variables Before and After Missing Data Addressed

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
<i>Nursing Home Rules</i>					
Permitted to Visit When Desired [†]	4.81 (0.48)	5.00 (0.00)	-	-	$D(27) = .52, p < .05$
Permitted to Visit In Privacy [†]	4.41 (1.01)	5.00 (1.00)	-	-	$D(27) = .52, p < .05$
Permitted Outings With Out Staff [†]	4.89 (0.42)	5.00 (0.00)	-	-	$D(27) = .53, p < .05$
Permitted Bring Pets to Visit [†]	4.50 (1.16)	5.00 (0.25)	-	-	$D(14) = .45, p < .05$
Permitted Have Meals in the Dining Room [†]	4.86 (0.48)	5.00 (0.00)	-	-	$D(21) = .52, p < .05$
Permitted Have Meals in Privacy [†]	4.39 (1.23)	5.00 (1.00)	-	-	$D(27) = .53, p < .05$
Permitted to Attending Recreation Groups [†]	4.80 (0.89)	5.00 (0.00)	-	-	$D(20) = .54, p < .05$
Permitted Attend Recreation Outings [†]	4.27 (1.61)	5.00 (0.00)	-	-	$D(11) = .49, p < .05$
Permitted Take Resident Out Overnight [†]	3.75 (1.91)	5.00 (4.00)	-	-	$D(16) = .43, p < .05$
Permitted to Telephone When Desired [†]	4.85 (0.46)	5.00 (0.00)	-	-	$D(27) = .52, p < .05$
Permitted to Have Private Parties [†]	4.74 (0.85)	4.74 (0.00)	-	-	$D(27) = .51, p < .05$
Provided a Recreation Calendar [†]	1.44 (1.12)	1.00 (0.00)	-	-	$D(27) = .47, p < .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
<i>Recreation Preferences</i>					
Interest in Talking on Telephone	3.78 (1.37)	4.00 (2.00)	-	-	$D(27) = .26, p < .05$
Interest in E-Mail	2.52 (1.72)	1.00 (3.00)	-	-	$D(27) = .33, p < .05$
Interest in Webcam	2.70 (1.71)	3.00 (4.00)	-	-	$D(27) = .29, p < .05$
Interest in Private Visits	4.37 (0.74)	5.00 (1.00)	-	-	$D(27) = .32, p < .05$
Interest in Public Visits	2.85 (1.35)	3.00 (3.00)	-	-	$D(27) = .25, p < .05$
Interest in Public Parties*	2.85 (1.49)	3.00 (3.00)	-	-	$D(27) = .16, p > .05$
Interest in Parties Private	4.11 (1.15)	4.00 (1.00)	-	-	$D(27) = .31, p < .05$
Interest in Private Meals	3.59 (1.39)	4.00 (2.00)	-	-	$D(27) = .21, p < .05$
Interest in Attending Recreation Groups	2.78 (1.40)	3.00 (3.00)	-	-	$D(27) = .20, p < .05$
Interest in Private Outings	3.63 (1.42)	4.00 (2.00)	-	-	$D(27) = .20, p < .05$
Interest in Pet Visits	2.72 (1.84)	2.00 (4.00)	-	-	$D(18) = .33, p < .05$
Interest in Public Outings	2.46 (1.47)	2.50 (2.75)	-	-	$D(24) = .26, p < .05$
Interest in Semi-Private Outings	3.08 (1.56)	3.50 (3.00)	-	-	$D(24) = .22, p < .05$
Interest in Meals in the Dining Room	2.58 (1.42)	2.58 (3.00)	2.59 (1.39)	3.00 (3.00)	$D(27) = .25, p < .05$

Variable	Before		After		Normality
	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	Mean (<i>sd</i>)	Median (<i>ICQ</i>)	
Interest in Receiving Recreation Calendar	2.85 (1.74)	3.50 (3.25)	2.93 (1.75)	4.00 (4.00)	$D(27) = .27, p < .05$
Interest in Overnight Outings	1.81 (1.50)	1.00 (1.25)	1.78 (1.48)	1.00 (1.00)	$D(27) = .44, p < .05$
Interest in Recreation Calendar	2.85 (1.74)	3.50 (3.25)	2.93 (1.75)	4.00 (4.00)	$D(27) = .27, p < .05$
Interest in Improving Contact	1.89 (1.50)	1.00 (2.00)	-	-	$D(27) = .43, p < .05$
Interest in Improving Visits	1.78 (1.40)	1.00 (1.00)	-	-	$D(27) = .42, p < .05$
<i>Demographics</i>					
Age*	59.07 (14.41)	59.00 (18.00)	-	-	$W(27) = .96, p > .05$
Years of Education Completed [†]	14.78 (3.08)	16.00 (4.00)	-	-	$D(27) = .20, p < .05$
Dependents	0.37 (0.88)	0.00 (0.00)	-	-	$D(27) = .48, p < .05$
Health Limited Interaction	1.63 (1.08)	1.00 (1.00)	-	-	$D(27) = .38, p < .05$
Mileage From Nursing Home	270.56 (797.86)	5.50 (13.00)	-	-	$D(27) = .38, p < .05$
Ease of Transportation	4.26 (1.26)	5.00 (2.00)	-	-	$D(27) = .48, p < .05$
Resident Tenure	2.90 (2.74)	2.00 (3.25)	-	-	$D(27) = .23, p < .05$

* = Normal Distribution

† = See Family/Friends' Categorical Variables Before and After Missing Data Addressed for Transformed Values

Family/Friends' Categorical Values Before and After Missing Data Addressed

Variable	Before	After
<i>Nursing Home Rules</i>		
Permitted to Visit When Desired [†]		
All the Time	66%	-
Not All the Time	33%	-
Permitted to Visit In Privacy [†]		
All the Time	66%	-
Not All the Time	33%	-
Permitted Outings With Out Staff [†]		
All the Time	93%	-
Not All the Time	7%	-
Permitted Bring Pets to Visit [†]		
All the Time	41%	-
Not All the Time	11%	-

Variable	Before	After
Permitted Have Meals in the Dining Room [†]		
All the Time	70%	-
Not All the Time	7%	-
Permitted Have Meals in Privacy [†]		
All the Time	63%	-
Not All the Time	22%	-
Permitted to Attending Recreation Groups [†]		
All the Time	70%	-
Not All the Time	4%	-
Permitted Attend Recreation Outings [†]		
All the Time	33%	-
Not All the Time	7%	-

Variable	Before	After
Permitted Take Resident Out Overnight [†]		
All the Time	41%	-
Not All the Time	19%	-
Permitted to Telephone When Desired [†]		
All the Time	85%	89%
Not All the Time	11%	11%
Permitted to Have Private Parties [†]		
All the Time	82%	89%
Not All the Time	11%	11%
Provided a Recreation Calendar [†]		
All the Time	7%	7%
Not All the Time	89%	93%

Variable	Before	After
<i>Ability to Interact with Residents</i>		
Able to Use Telephone Most of the Time		
Yes	96%	-
No	4%	-
Able to Use Internet Most of the Time		
Yes	70%	-
No	30%	-
Able to Get to Nursing Home Most of the Time		
Yes	82%	-
No	18%	-
Able to Take Resident on Outings Most of the Time		
Yes	74%	78%
No	22%	22%

Variable	Before	After
<i>Demographics</i>		
Gender		
Female	78%	-
Male	22%	-
Race - White	100%	-
Graduated from College [†]		
Yes	52%	-
No	48%	-
Worked Some or All the Time		
Yes	56%	-
No	44%	-
Resident Receives Medicare		
Yes	100%	-
No	0%	-

Variable	Before	After
Resident Receives Medicaid		
Yes	77%	-
No	15%	-

† = See Family/Friends' Continuous Variables Before and After Missing Data Addressed for Original Values

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EDUCATION

- Expected – May 2009 The Pennsylvania State University, State College, PA
Ph.D. in Recreation, Parks, and Tourism Management, Minor in Gerontology
- September 1995 State University of New York, Cortland, NY
M.S. in Recreation and Leisure Studies, Specialization in Therapeutic Recreation
- May 1989 State University of New York, Purchase, NY
B.A. in Psychology

CREDENTIAL

Certified Therapeutic Recreation Specialist, National Council for Therapeutic Recreation Certification, #41741

TEACHING

- Assistant Professor, August 2007 – Present, Therapeutic Recreation, Health Studies, & Gerontology, Utica College, Utica, NY
- Visiting Instructor, August 2006- August 2007, Recreation and Leisure Studies, East Carolina University, Greenville, N.C.
- Guest Lecturer, November 2002 – Summer 2006, Recreation, Parks, and Tourism Management and Gerontology, The Pennsylvania State University, University Park, PA
- Instructor, September 2001 – May 2002, Therapeutic Recreation and Leisure Services Department, Ithaca College, Ithaca, NY

RESEARCH

- Co-investigator, July 2005 – July 2006, Integrating Close Family Members into Nursing Home Recreation Services, The Pennsylvania State University, State College, PA
- Research Assistant, May 1999 – August 2002, Pathways to Life Quality Study, Gerontology Institute, Ithaca College, Ithaca, NY

PUBLICATIONS

- Godbey, G., Burnett-Wolle, S., & Chow, H. (2007). New ideas for promoting physical activity among middle age and older adults. *Journal of Physical Education, Recreation and Dance*, 78, 22-26.
- Burnett-Wolle, S., & Godbey, G. (2007). Refining research on older adults' leisure: Implications of selection, optimization, and compensation and socioemotional selectivity theories. *Journal of Leisure Research*, 39, 498-513.
- Godbey, G., & Burnett-Wolle, S. (2007). Looking below the surface: Keys to promoting physical activity. *The Journal on Active Aging*, 6, 40-44.
- Burnett-Wolle, S., & Godbey, G. (2005, March). Research Update: Active Aging 101, *Parks & Recreation*, 40, 30-40.
- Krout, J. A., Holmes, H. H., Erickson, M. A., & Wolle, S. (2003). Residential relocation. In J. A. Krout & E. Wethington (Eds.), *Residential choices and experiences of older adults: Pathways to life quality* (pp. 27-48). New York, NY: Springer.
- Krout, J. A., Holmes, H. H., & Wolle, S. (2003). Utilization of community-based services. In J. A. Krout & E. Wethington (Eds.), *Residential choices and experiences of older adults: Pathways to life quality* (pp. 27-48). New York, NY: Springer.